H.264 Hardware Codec
4Ch Network Digital Video Recorder

User's Manual

SAFETY WARNING

All the safety and operating instructions should be read before the unit is operated.

Environmental Conditions for Installation

1. To prevent electric shock or other hazard, do not expose the unit to rain, moisture, or dust.
2. Place this unit in a well-ventilated place and do not place heat-generating objects on this unit.
3. This unit should not be located in an area where it is likely to be subjected to mechanical shocks.

Before You Start

1. Ensure the power switch is in the OFF position prior to starting.
2. Do not attempt to open or remove the covers. That may expose you to dangerous voltage or other hazards.
3. Installation should be performed by qualified service personnel only.
4. This unit should be operated only from the type of power source indicated on the manufacturer's label and with the power supply included with the unit.

Notice

1. Before initial configuration or operation you must first set the TIME/DATE, followed by a HDD Clear.
2. If you do not follow this steps first, that may cause non-recording on the HDD or non-saving setting value. Even though it is recorded, you cannot search recorded data.
3. When it comes to HDD capacity, you can use a big size of HDD.
4. When you set the Record Setup, you have to set the Record Configuration and also Schedule Setup.
5. This unit records as per Record type & Schedule mode. The default setting value for Schedule setup is Continuous mode.

Notice

1. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference in which case the manufacturer of the device is not responsible and the user would be responsible to correct the interference.

Important Notice

All system/software user interfaces, features, and settings are subject to change without prior notice. This version of User's Manual has been updated in accordance with DVR Firmware V2.08.X.X and Remote Software (IRS) V2.0.X.X

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CH 1. Features & Packing List

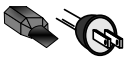
1-1. Features

Real-Time Display
Real-Time Display Per Camera
Auto Sequence of Each Camera
PIP (Picture-in-Picture) with Auto Sequence
Digital Zoom (2X)
Screen Freezing at Critical Movement
Quick Playback
Quick PTZ Control
Recording
Adjustable Image Quality for Efficient Recording (5 Levels)
Audio Recording
Schedule Recording (Multi-Levels)
Event-Triggered Recording by Video Motion Detection & Alarm
Emergency Recording
Network
IRS (Integrated Remote Station) Surveillance System
Quick Setup with DDNS Support
Playback
Search & Playback by Recorded Data Size, Date/Time, & Event Type
Various Playback Speed (Forward & Backward)
Event Search
Data Backup
Backup via USB Memory Stick/Network
Others
Supports UNI-CODE
Supports SPOT/Call Monitor
NTSC/PAL Auto Detection
Video Loss Detection

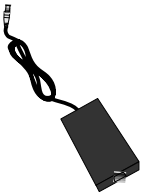
1-2. Packing List

1. DVR Main Unit

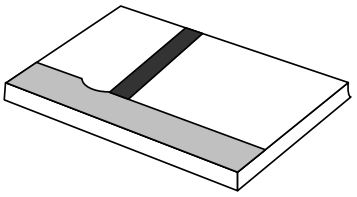
2. Remote Controller *



3. Power Cable



4. Power Adapter



5. User's Manual

6. Software CD

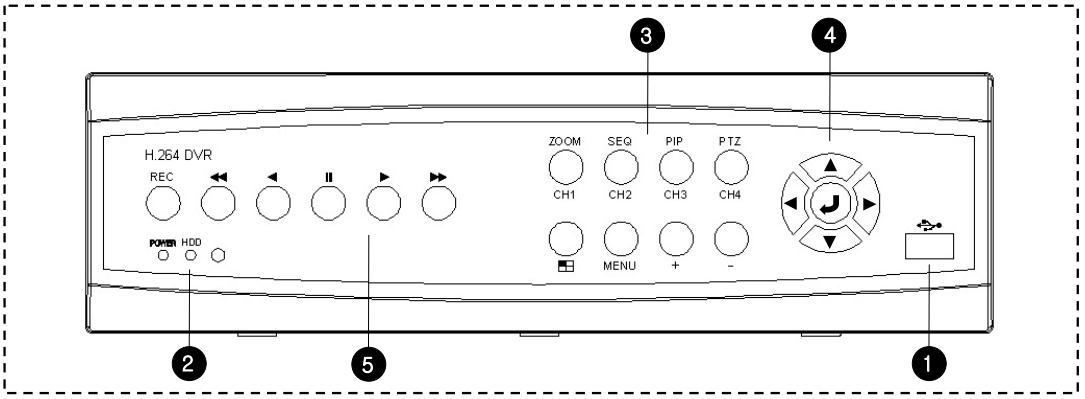
7. Bolts

8. Mouse

Items	Description
1. DVR Main Unit	Standalone Digital Video Recorder (DVR)
2. Remote Controller	IR remote controlling of all functions of DVR (optional)
3. Power Cable	AC power supply to adapters for 12V DC power
4. Power Adapter	DC power supply
5. User's Manual	User's Manual
6. Software CD	IRS Surveillance System & User's Manual PDF version
7. Bolts	Bolts for fixing HDD
8. Mouse	Optical wheel mouse controlling of all functions of DVR

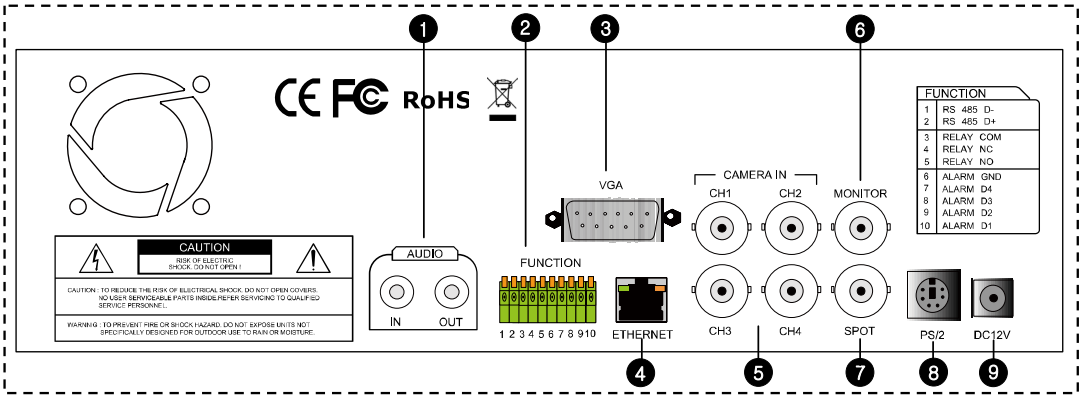
CH 2. Panel Views & Functions

2-1. Front View



Nr	Name	Function	
1	USB Port	Used for data backup and firmware upgrade	
2	LED Indicators	Displays current operation status	
3	Operation Buttons	Double-Key: (1) Short Press or (2) Press & Hold	
		ZOOM CH1	Short Press: Selects Channel No. 1 Press & Hold: Goes to Zoom mode
		SEQ CH2	Short Press: Selects Channel No. 2 Press & Hold: Goes to Sequence mode
		PIP CH3	Short Press: Selects Channel No. 3 Press & Hold: Goes to PIP (Picture-in-Picture) mode
		PTZ CH4	Short Press: Selects Channel No. 4 Press & Hold: Goes to PTZ operation mode
		MENU	Short Press: Goes to System Menu setup mode Press & Hold: Shows control Icon Bar
		+ -	Increase or decrease each value
			Selects 4-split display or single-channel display
4	Arrow Buttons	▲▼◀▶	Moves mouse cursor at System Menu mode
		ENTER	(1) Works like mouse clicking (2) Selects each category at System Menu setup mode
5	Record/Playback	REC	(1) Activate Emergency Recording mode or stops recording at Live mode (2) Gets back to Live model from Playback mode
		◀◀	Increases playback speed
		◀	Backward playback
		II	Pause
		▶	Forward playback
		▶▶	Decreases playback speed

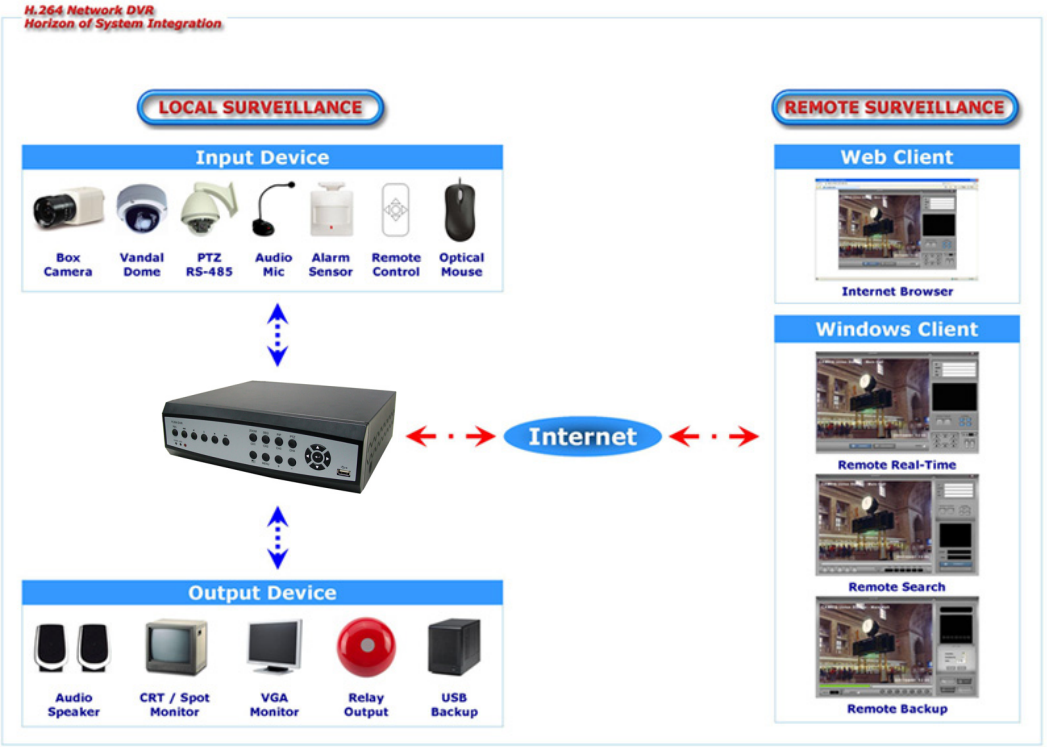
2-2. Rear View



Nr	Name	Function	
1	AUDIO	IN	1 x Audio input
		OUT	1 x Audio output
2	FUNCTION	1~2	RS-485 for connecting PTZ camera or device using it
		3~5	Relay out terminal
		6~10	Sensor input terminal
3	VGA	Connection to external VGA monitor	
4	ETHERNET	LAN/WAN connection for remote surveillance	
5	CAMERA IN	1~4	4 x BNC input (NTSC/PAL)
6	MONITOR	1 x external composite monitor output (NTSC/PAL)	
7	SPOT	1 x SPOT monitor output (NTSC/PAL)	
8	PS/2	Connection to PS/2 mouse for controlling DVR operations	
9	DC Power	DC 12V power input	

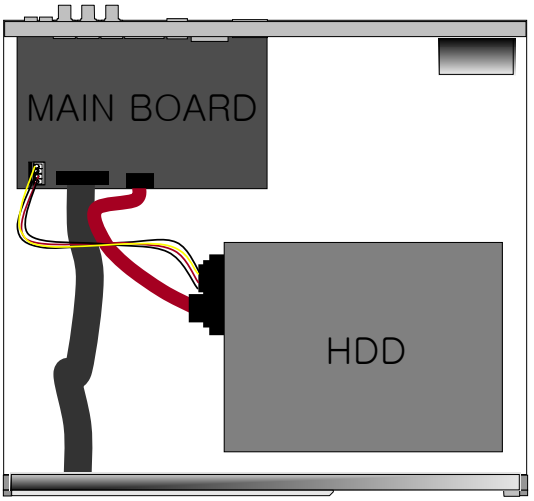
CH 3. Installation

3-1. System Integration Diagram



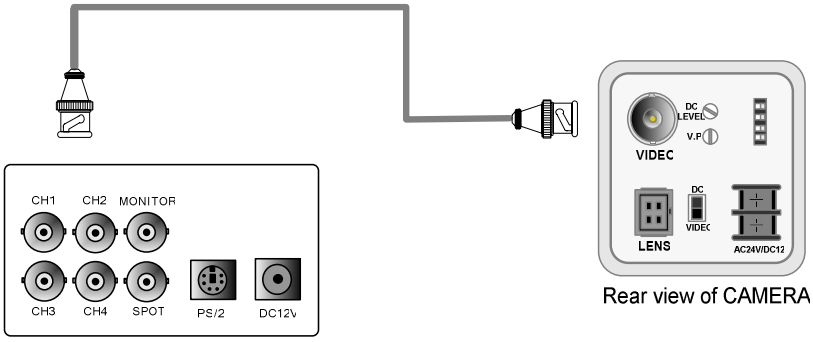
3-1. Installation

1) HDD (Hard Disk Drive)



1. Connect Main Board and HDD with SATA data cable and HDD power cable.
2. Stick HDD Absorber (incl. in the package) on the bottom of chassis and then install HDD on top of them by using HDD Bolts (included in package).
3. Screws must be inserted from outside of the chassis bottom.
4. For a list of recommended HDD brands and models, please refer to Appendix I.

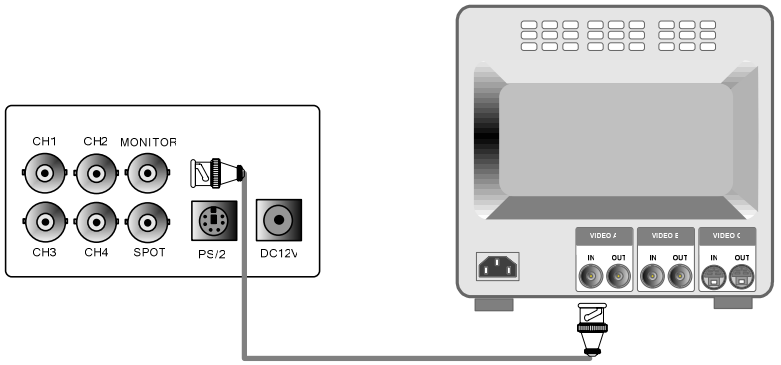
2) Camera (1~4Ch)



Rear view of CAMERA

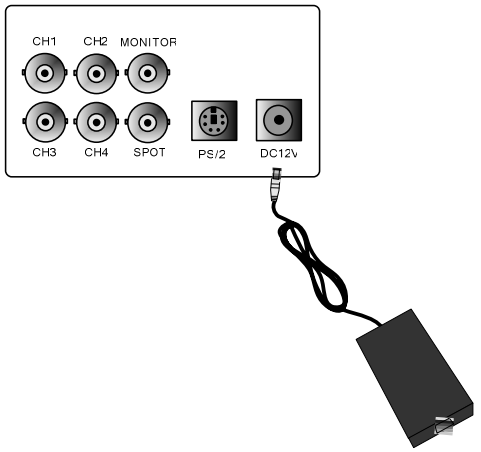
Connect camera to the camera input on Rear Panel of DVR marked as CAMERA IN.

3) Monitor



Connect the video output marked as MONITOR to Video-In of Main monitor.

4) Power Supply



DC over 12V Adapter.

5) System Integration (with External Third-Party Device)

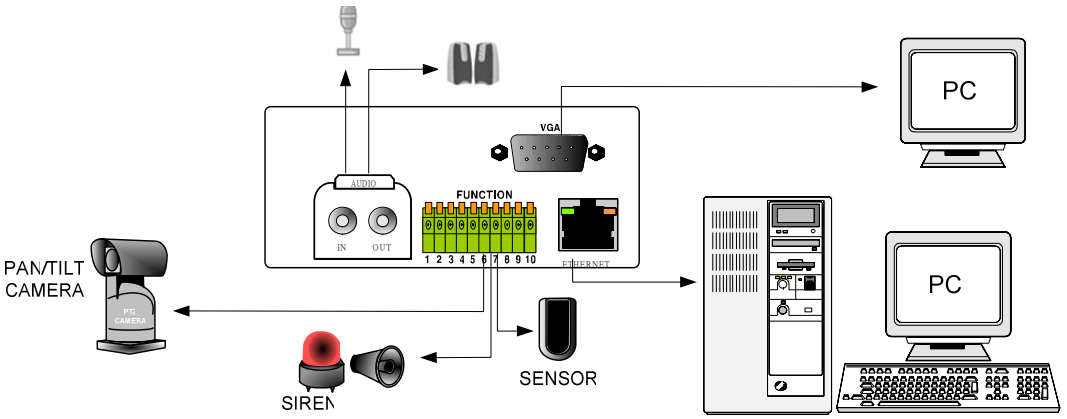


Table below shows functions of each pin on the Terminal Block:

FUNCTION	
1	RS 485 D-
2	RS 485 D+
3	RELAY COM
4	RELAY NC
5	RELAY NO
6	ALARM GND
7	ALARM D4
8	ALARM D3
9	ALARM D2
10	ALARM D1

Please refer to <2-2. Rear Panel> for complete description of each connectors.

CH 4. Operation

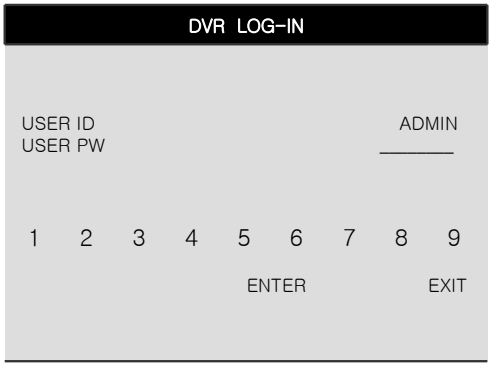
4-1. System Log-In

GENERAL USE OF MOUSE

Mouse Button	Functions
Wheel	Increases or decreases setup value on the Menu mode
Right	Decreases setup value on the Menu mode
Left	Increases setup value on the Menu mode Execute all of the functions (by clicking icons)

* Please use a mouse pad for proper operation of the mouse.

1) Right-click the mouse, a Icon Bar will be s how on the screen. Then click the [Menu] icon to log-in.
2) Then, you will see a [DVR Log-In] window shown at right.
3) You may log in as an ADMIN, MANAGER, or USER1 to USER8.
4) Enter your password (maximum 8 digits are available for higher security protection) and click [Enter].
5) To exit, click [Exit] button.



If the password entered matches previously set password, you can log into [Main Menu]. If an incorrect password is entered, you will see PW IS NOT CORRECT message on display. The factory default of password is none. Just click [Enter] for first-time log in.

Level of Authority	Password
ADMIN	None
MANAGER	1
USER1 ~ USER8	2~9

Important Notice

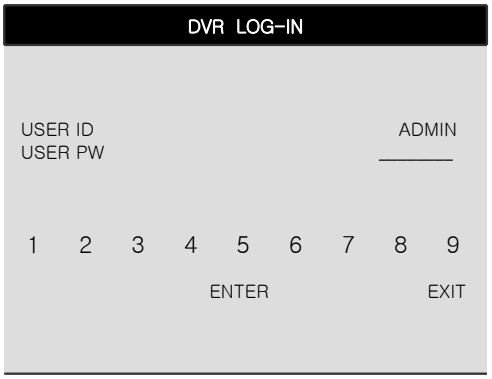
※ For security reasons, please be sure to make a special note of your own password.
※ User accessibility to critical system settings is restricted according to its level of authority.

4-2. HDD Clear

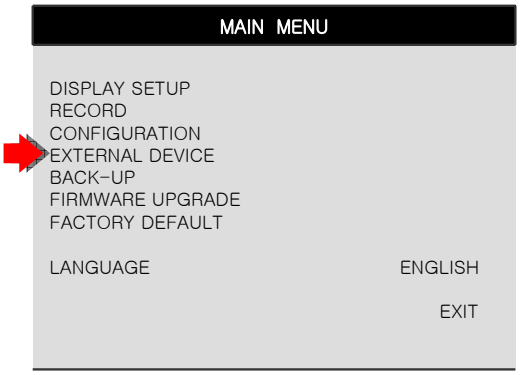
Before first operation, you must proceed the followings:
1) Each channel is displaying properly, and
2) Log-in [Main Menu] to set Time/Date and clear HDD.

[HDD Management] window shows you HDD model name, serial number, number of blocks, and size of HDD. To clear HDD for first operation, please follow RED ARROW ➡ below:

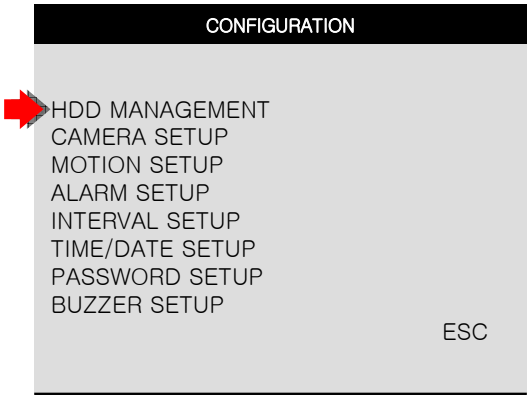
(1) Please refer to <4-1. System Log-In> again. Then, click [Enter].



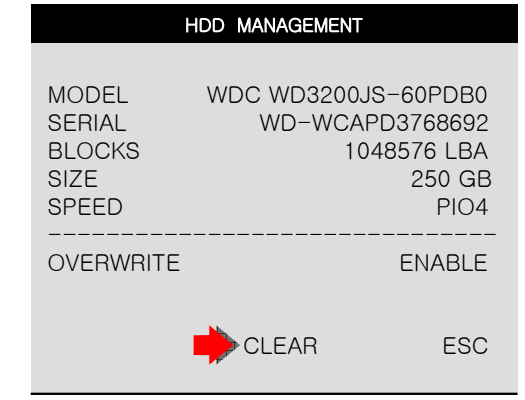
(2) Click [External Device].



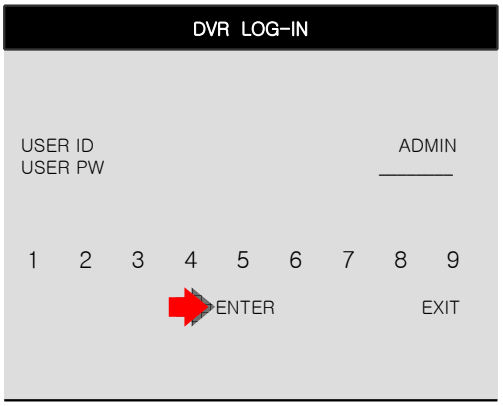
(3) Click [HDD Management].



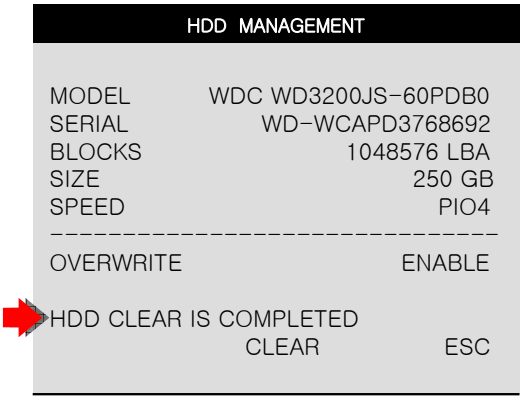
(4) Click [Clear].



(5) Please refer to <4-1. System Log-In> again. Then, click [Enter].



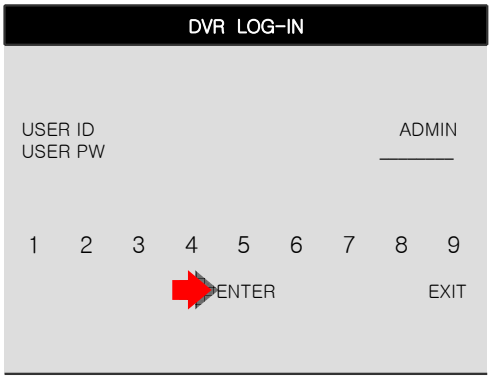
(6) The message indicates that HDD clearing process is being completed.



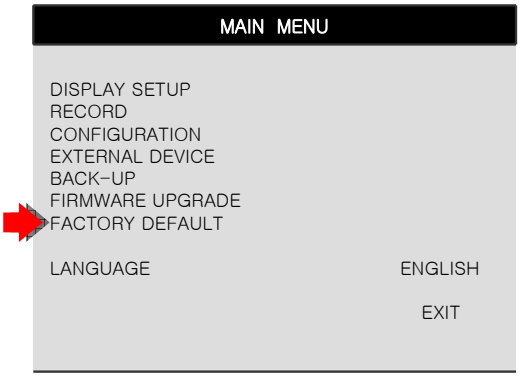
4-3. Factory Default

First operation of DVR is based on Factory Default. Following steps will guide you in case the need to restore back to Factory Default settings is so required.

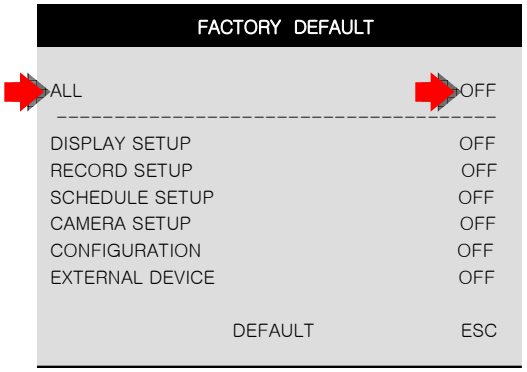
1) Please refer to <4-1. System Log-In> again. Then, click [Enter].



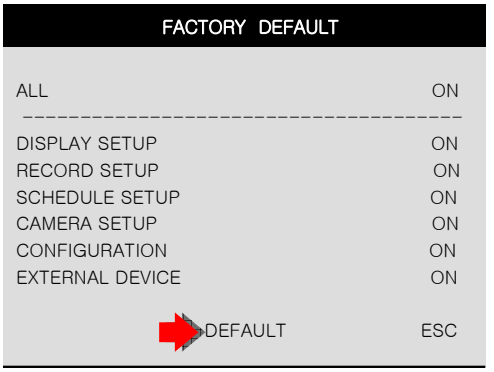
2) Click [Factory Default].



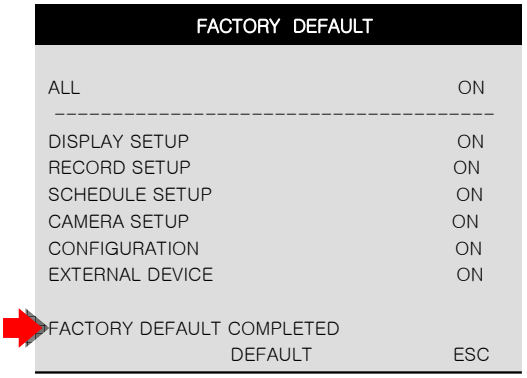
3) Choose [On] for [All].



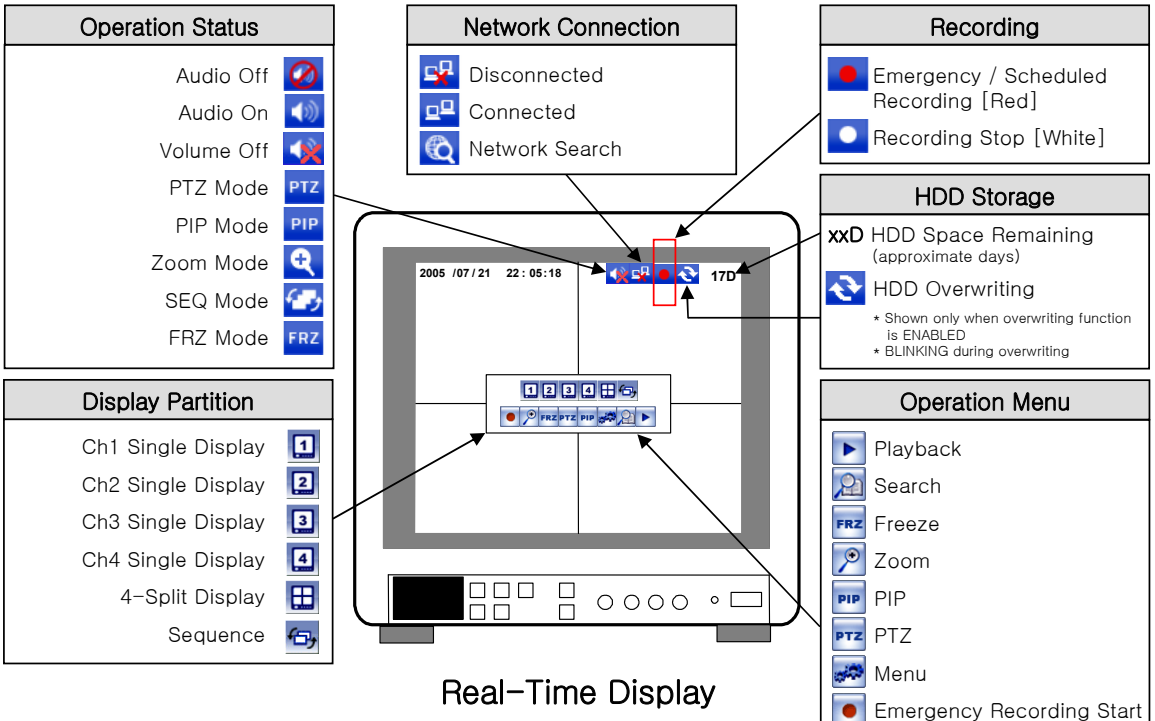
4) Click [Default].



5) The message indicates that the system has returned back to Factory Default.



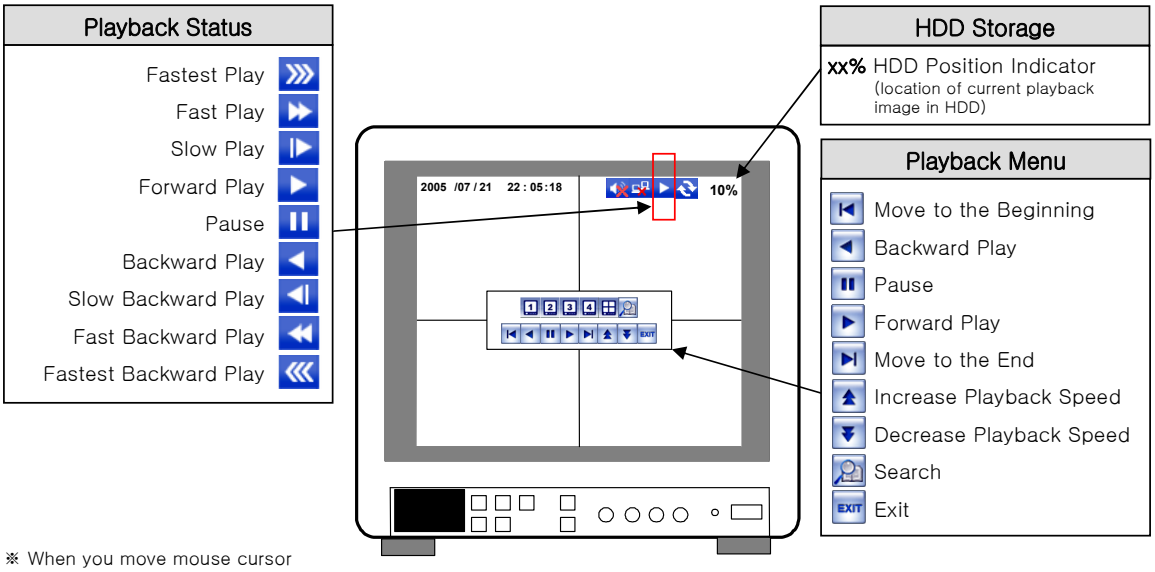
4-4. Display Configuration



Real-Time Display

※ Once you click on , it will go back to Scheduled Recording mode.

※ If you click on during Scheduled Recording mode, it will go to Emergency Recording mode.



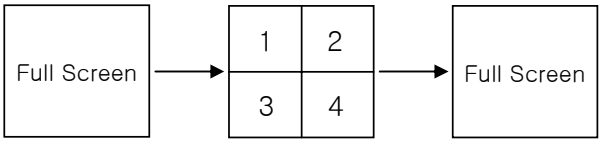
※ When you move mouse cursor over icon, its colour will change.
For example: PTZ → PTZ

Playback Display

4-5. Real-Time Display Setup

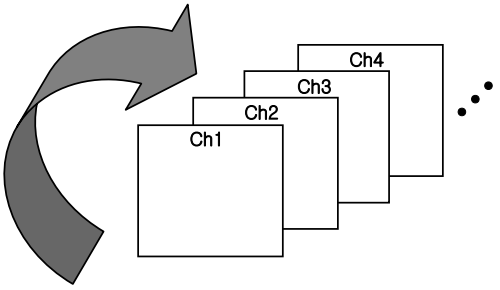
1) Full / Multiple View

Move mouse cursor over [4-Split] icon in the Icon Bar and click it to view 4-channel partition. To enlarge each channel into full-screen, click on [Ch1/Ch2/Ch3/Ch4 Single Display] 1 / 2 / 3 / 4 icon, then you will see a full-screen single-channel display.



2) Sequence (SEQ View)

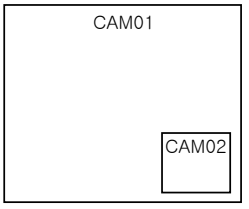
Click on [SEQ] icon , it will automatically display full-screen H.264 video streaming in sequence. You can setup SEQ time-interval in [Main Menu]. See <5-4-5. Interval Setup>.



3) Picture-in-Picture (PIP View)

When it is in full-screen display mode, you can see other channel in a small window by clicking [PIP] icon PIP .

Channels in small window is rotating in sequence to next number of channel and you can set the rotating time-interval as per the procedure in [Main Menu]. See <5-4-5. Interval Setup>.



4) Zoom View

In Real-Time mode, if you click [Zoom] icon , video streaming are being displayed in two times (2X) larger size. While using [Zoom] mode, you can move around the enlarged area by utilising a mouse.

To exit, click [Zoom] icon again.

5) Freeze (FRZ View)

Click [FRZ] icon FRZ in the Icon Bar in order to pause temporarily for a critical event.

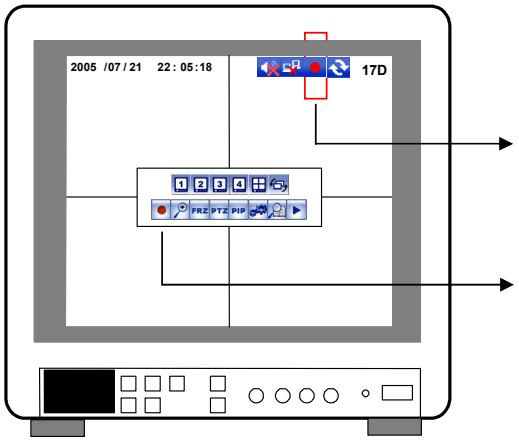
4-6. Recording

Emergency Recording (Manually Forced Recording)

DVR will record according to criteria specified in Scheduled Recording mode. Otherwise you may still force recording at anytime by clicking this icon , it will keep Round-the-Clock (RTC) recording continuously regardless of criteria set in the schedule.

Scheduled Recording

DVR will only record according to schedule user specified.



Recording Status Indicator

[Red] Recording

Emergency Recording
Scheduled Recording

[White] Stop Recording

Click icon to activate Emergency Recording.

Click icon to stop Emergency Recording and go back to Scheduled Recording.

Important Notice

DVR unit does NOT record under following conditions:
※ When HDD is full and Overwrite function is off; and
※ During upgrade of firmware.

4-7. Playback

On record mode or stop mode, click [Playback] icon to review the recorded data in 1x speed.

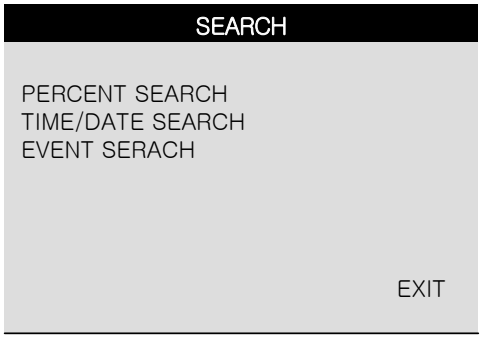
4-8. Search

There are three search methods available, and all of them can simply be conducted by wheel, left and/or right button of a mouse.

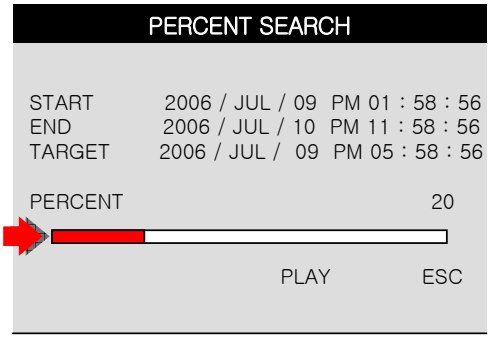
Type	Description
Percent Search	Search by percentage of total recorded data. It searches data according to percentage portion set on the search bar.
Time/Date Search	Search by time & date. Playback starts from the time & date selected.
Event Search	Search by event list (Motion, Alarm, Video Loss).

When clicking on [Search] icon , you will see a Search window as shown in 1).

1) [Search] main menu

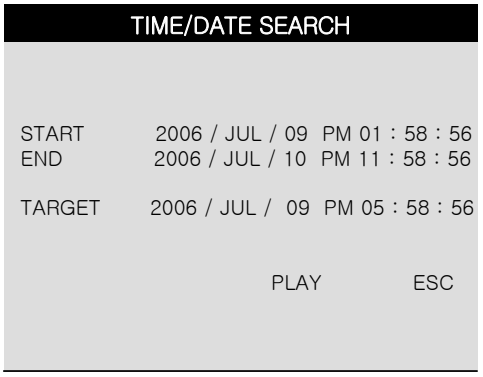


2) Search by Percentage

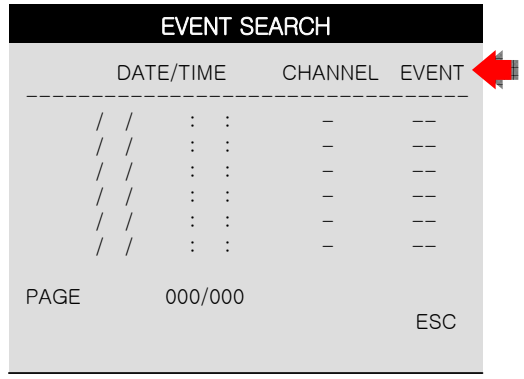


Use mouse to drag on percentage bar in order to set out portion of recorded data to be searched.

3) Search by Time/Date



4) Search by Event Type

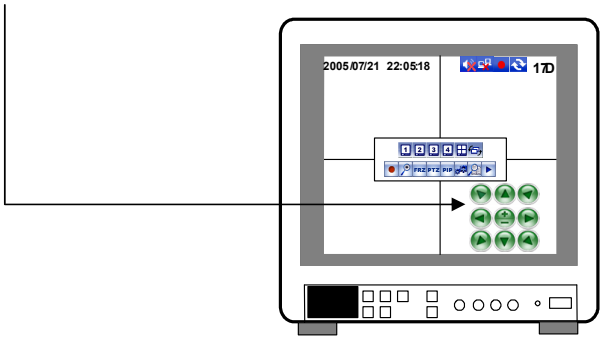


Type of events include: Motion, Alarm & Video Loss.

4-9. Pan/Tilt/Zoom Camera Operation

Click [PTZ] icon in the Icon Bar, you can see a pad of nine directional and zooming keys shown as below. Click these arrow keys in order to control a PTZ camera's directions.

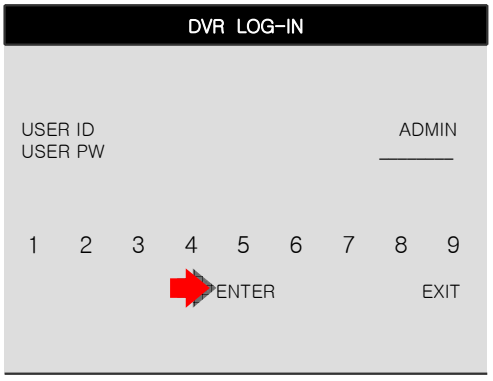
By clicking zooming (+/-) keys, you can control ZOOM IN/OUT function.



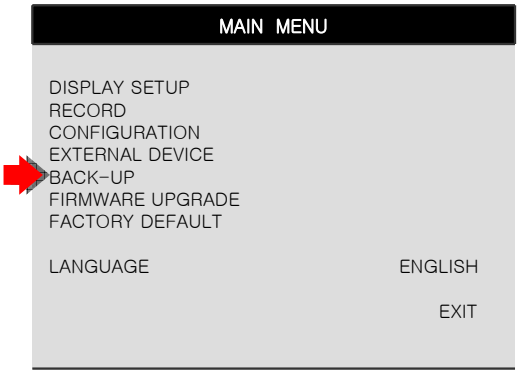
4-10. Data Back-Up

Right-click to see the icon bar and click [Menu] icon and go to [Back-Up].

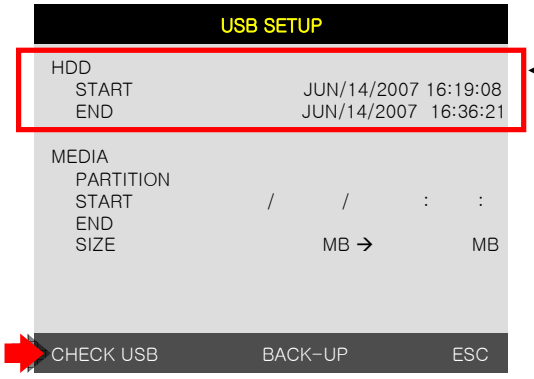
1) Please refer to <4-1. System Log-In> again. Then, click [Enter].



2) Click [Back-Up].



3) Insert USB memory stick and click [Check USB].



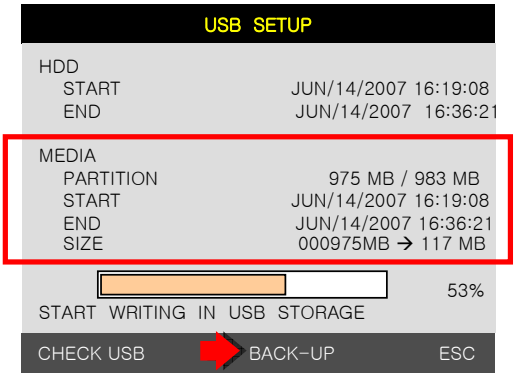
The START and END time/date in HDD sub-menu only shows start and end of recording. This is both not selectable and editable.

※ Only USB memory stick may be used for DVR data back-up purpose.

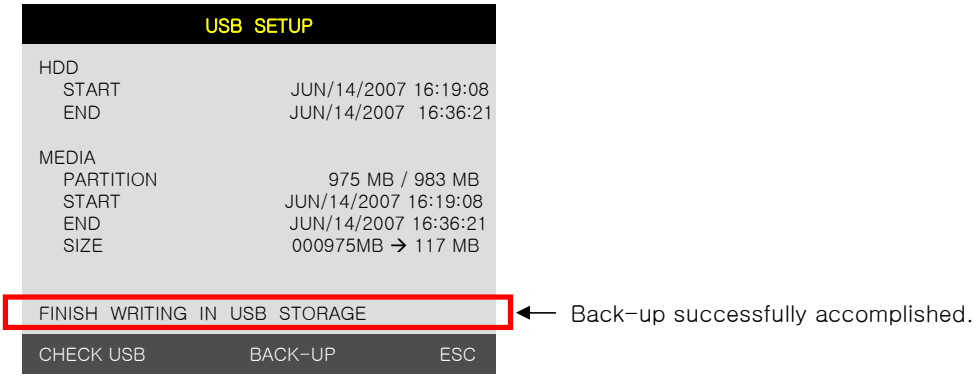
4) To specify START-time and data-SIZE of back-up in MEDIA sub-menu, use mouse left, right and wheel button.

END-time of back-up will be calculated automatically as per START-time and data-SIZE of back-up you set.

5) Click BACK-UP to start DVR back-up.



6) You can verify back-up data by installing and running the Player on your PC.
See <6-3. Viewer>.



There are three types of error messages may be seemed during/after back-up:

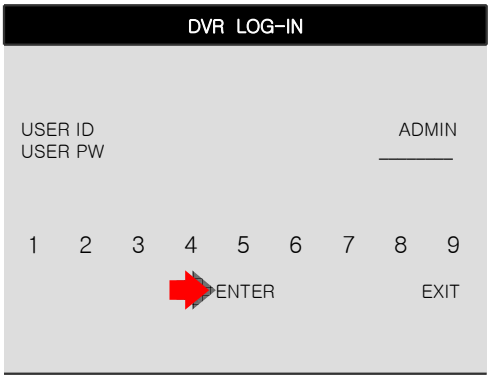
Error Message	Description
THERE IS A PROBLEM ON USB PORT	If USB port fails to work or not connect properly
INPUT DATE TIME ERROR	User specified date and time incorrect, not in between START and END time in HDD
RECORD DATA IS NOT AVAILABLE	When USB memory stick is full or back-up data size is zero (0MB)

CH 5. Setup

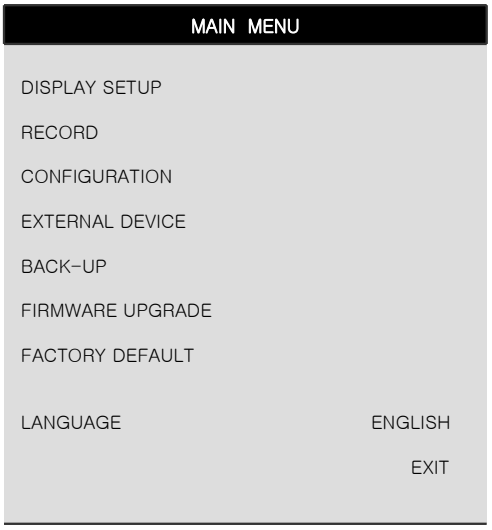
5-1. General Operation

Click the [Menu] icon and input User Password to log-in.

1) Please refer to <4-1. System Log-In> again. Then, click [Enter].

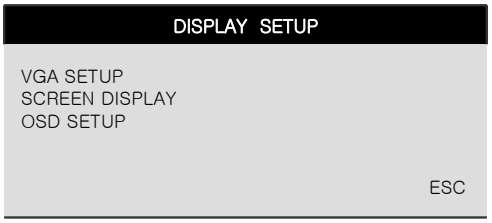


[Main Menu].

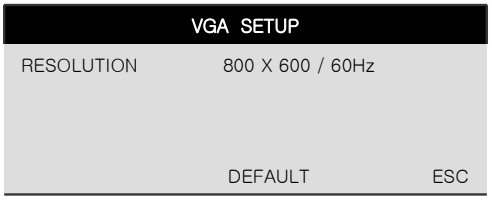


5-2. Display Setup

In [Main Menu], click [Display Setup], system will bring you a new window for display related settings as shown below:



1) VGA Setup



This is to setup resolution for external VGA monitor. Default Resolution is 800x600. Table below shows other resolution levels available:

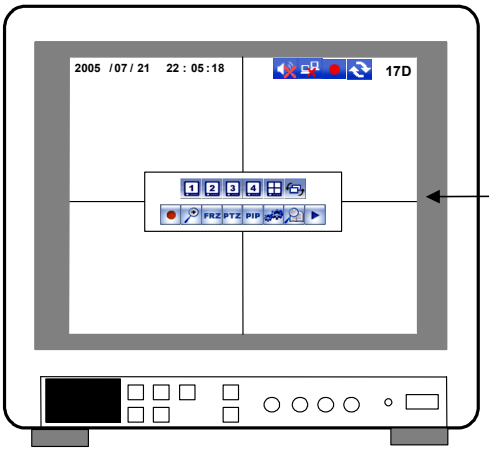
NTSC	PAL
640x480 / 60Hz	640x480 / 75Hz
800x600 / 60Hz	800x600 / 75Hz
1024x768 / 60Hz	1024x768 / 75Hz
1280x1224 / 60Hz	1280x1024 / 75Hz

Important Notice

Please check supporting resolution range of your VGA monitor before use. If you select high resolution such as 1024X768 or 1280X1024 on VGA SETUP with a VGA monitor that does NOT support such high resolution, video display may NOT be seen properly.

2) Screen Display Setup

SCREEN DISPLAY	
VERTICAL POSITION	24
HORIZONTAL POSITION	00
BOARDER ENABLE	ON
BOARDER COLOR	GRAY
DEFAULT	ESC

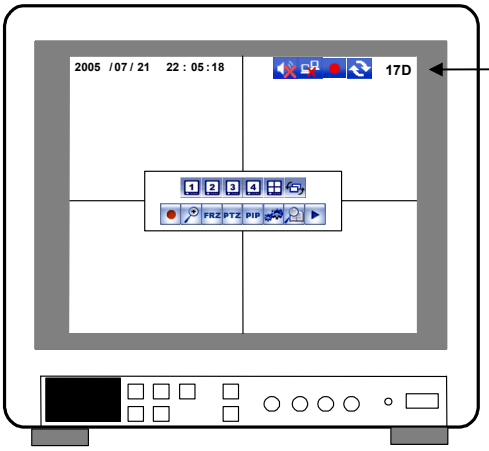


Adjustable Range

Vertical Position	-5 ~ 5
Horizontal Position	-31 ~ 31
Border Enable	On / Off
Border Colour	Colour Selections

3) OSD Setup

OSD SETUP	
TOP OSD OFFSET	0
DEFAULT	ESC

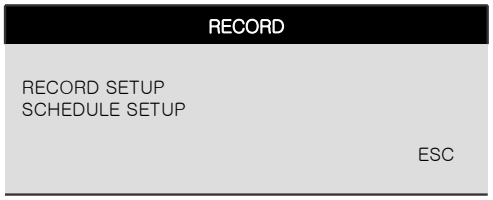


Top OSD Offset Range: -1 ~ 1

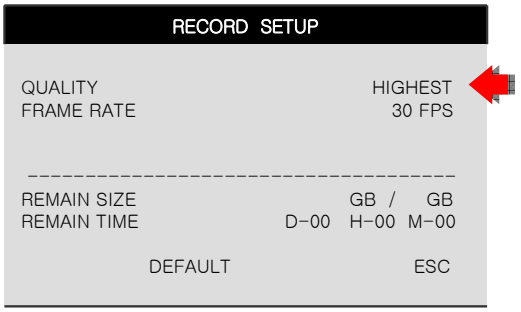
5-3. Recording

This is the most important configuration of DVR. Please follow instructions carefully.

In [Main Menu], select [Record Setup], a new window will appear as shown below:



1) Recording Setup



(1) Quality: 3 Levels

Highest
High
Normal

(2) Frame Rate

Values displayed indicates number of frames (images) per second (FPS) is being used in order to record a video clip in HDD. Range = 30, 15, 10, 5, 3 FPS.

(3) Remaining Size

Values displayed indicates remaining and total capacity of HDD installed. Size remained is affected by Quality and Frame Rate selected. Unit: Gigabyte.

(4) Remaining Time

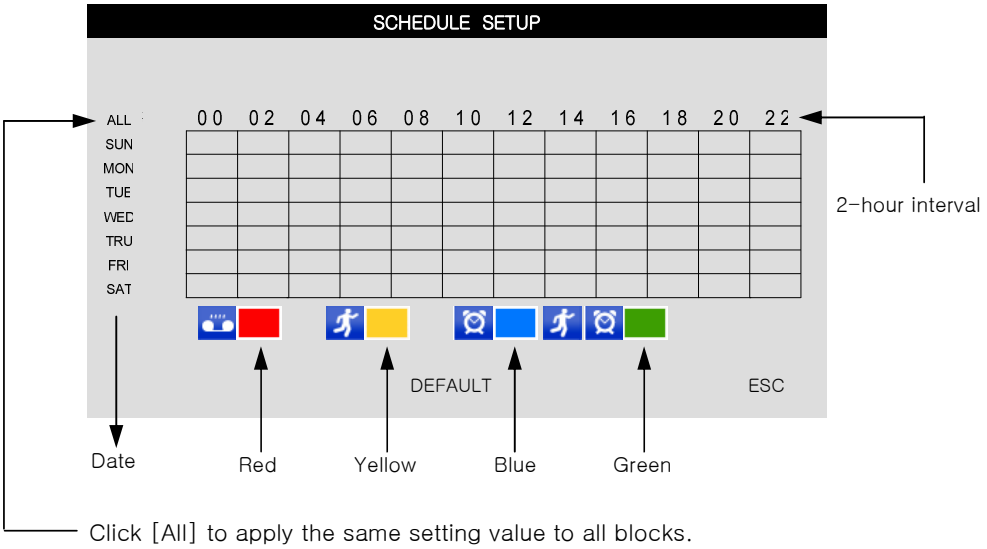
Values displayed indicates remaining capacity of HDD installed. Time remained is affected by Quality and Frame Rate selected. Unit: Time.

D = Days; H = Hours; M = Minutes .

2) Schedule Setup

DVR system records in both Emergency and Scheduled Recording modes. In Scheduled Recording mode, you can choose four different types of recording methods based on two-hour time interval from Sunday to Saturday.

Default recording method in Scheduled Recording mode is Continuous (RTC) recording.



Method of Recording	Description
Continues (Red)	Record round-the-clock (RTC) 24hr/7day
Motion (Yellow)	Record when a motion is being triggered
Alarm (Blue)	Record when an alarm is being detected
Motion & Alarm (Green)	Record either when a motion is being detected or an alarm is being triggered

Each Recording Method is differentiated by colours (red/yellow/blue/green).

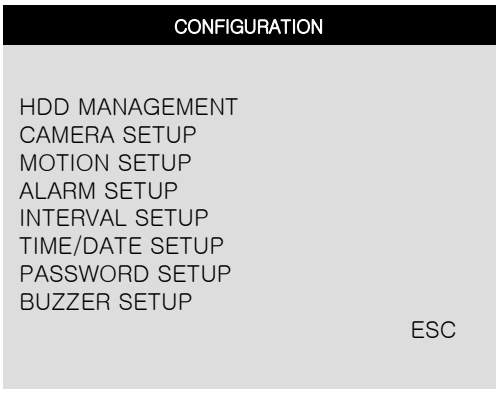
Use mouse to drag over each block in order to change its Recording Method. will be changed. All blocks can be activated or deactivated by using [All] button.

Once above setting is completed, DVR will record accordingly. Otherwise you may manually force DVR to record by clicking Emergency Recording mode .

To return to Scheduled Recording from Emergency Recording, click .
See <4-6. Recording>.

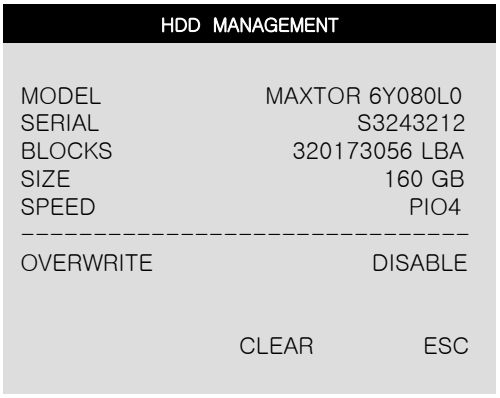
5-4. Configuration

When you click [Configuration] in [Main Menu], a setup menu will be shown as follow:



1) HDD Management

You can see HDD model name, serial number, number of blocks and size of HDD. You can also clear HDD. Note that, while you are in this [HDD Management] mode, DVR does NOT record.



HDD Information

MODEL	HDD model number
SERIAL	HDD serial number
BLOCKS	HDD LBA block number
SIZE	HDD total size
SPEED	HDD mode
OVERWRITE	Enable / Disable

What is OVERWRITE?

When HDD is full, the oldest data is being automatically deleted as DVR records new data in a cycle.

2) Time/Date Setup

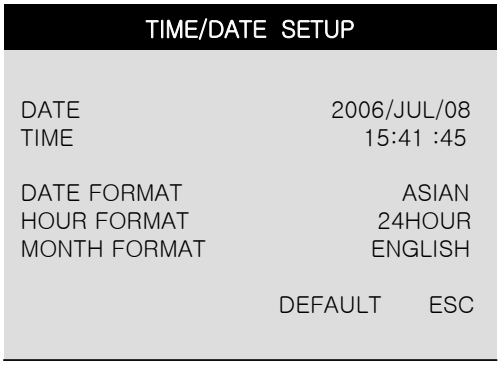
In this setup, you can select time/date of DVR and their format on display.

Use mouse to adjust each value.

For first operation of DVR, setup of Time/ Date is a MUST.

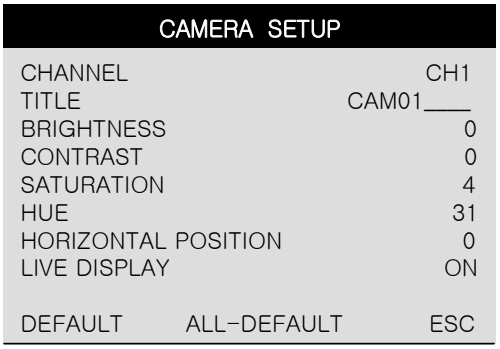
Types of Time/Date Format:

Date	Asian, European, American
Time	12Hr, 24Hr
Month	English, Numeric



3) Camera Setup

In this setup, you can fine tune each camera for optimal colour generation.



(1) CHANNEL:
First of all, select a camera channel which you would like to adjust.

(2) TITLE:
You can name each camera with 8-digit numbers/letters combination. Use mouse to select numbers/letters prefer. To exit, click [Esc].

Default = CAM 0 1 _ _ _ .

(3) LIVE DISPLAY:
Click [Off] to enable *privacy recording*. DVR recording still is in progressing.

(3) COLOR:
Use mouse to adjust colour composition of each camera.

Element	Value	Default
BRIGHTNESS	-32 ~ 31	1
CONTRAST	-32 ~ 31	7
SATURATION	-32 ~ 31	14
HUE	-32 ~ 31	-32

(4) Horizontal Position

To setup horizontal position of camera on display digitally. Range = -7~7. Default = 0.

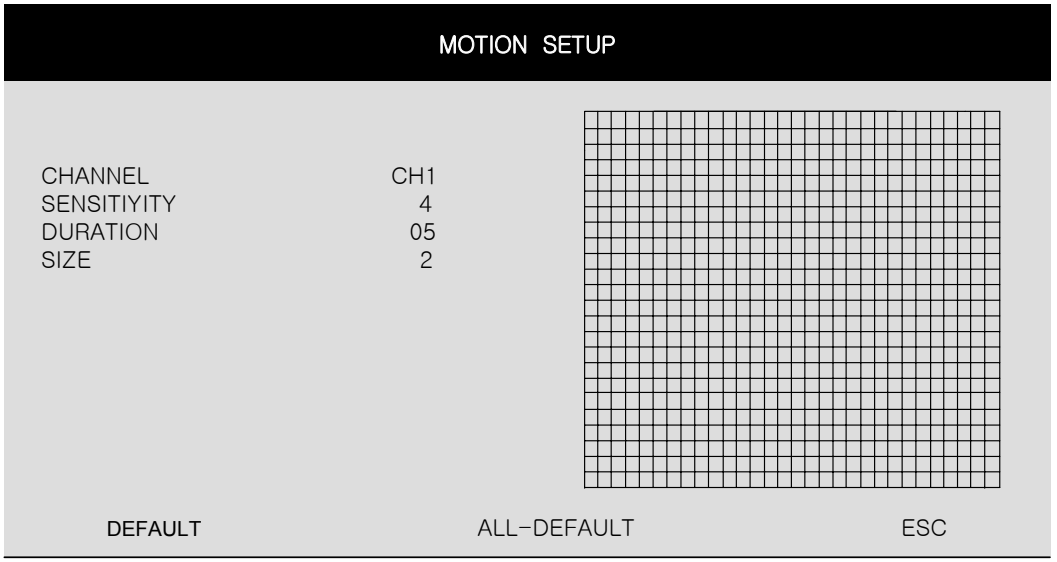
(5) Execution Buttons

ALL-DEFAULT: Apply Factory Default to all camera channels.

DEFAULT: Apply Factory Default to selected camera channel.

ESC: To exit.

4) Motion Setup



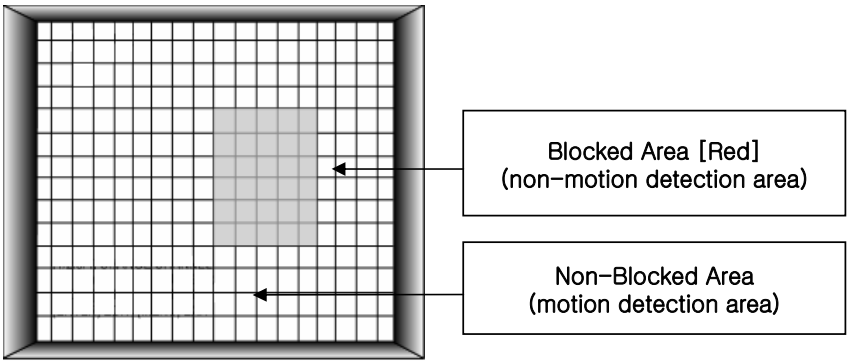
Use mouse wheel/left/right buttons to change setting values.

SENSITIYITY: Adjusting sensitivity level over a movement. Range = 1~5. Default = 4.
DURATION: Under Scheduled Motion Recording mode, whenever a motion is being detected, DVR will further record for a certain period of time after this particular motion is completely ended. Range = 1~99 sec. Default = 5 sec.
SIZE: Select the cell size for Blocked Area (Red). Value = 1,2,3,6, All. Default = 2.
ALL-DEFAULT: Apply Factory Default back to all channels.

MOTION MASK SETUP: Set video motion detection (VMD) area.

CELL: Move to the cell blocks and to decide whether or not to activate/deactivate by simple mouse clicking.
When the cell block is activated, motion is detected over it. Motion is not detected on deactivated cells.

BLOCK SETUP: Firstly, decide whether to activate or deactivate by clicking a cell.
Then, if the initial cell is activated, blocks dragged by mouse are also activated.
If the initial cell is deactivated, blocks dragged are also deactivated.

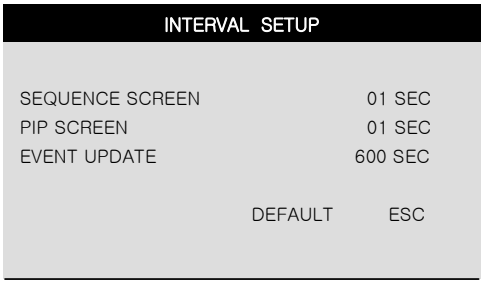


5) Interval Setup

Enable switching time-interval for SEQ and PIP functions. Range = 1~99 sec.

SEQUENCE SCREEN:
Set sequencing switch time interval on real-time full screen.

PIP SCREEN:
Set sequencing switch time interval for PIP (Picture-in-Picture) Window on real-time full screen.



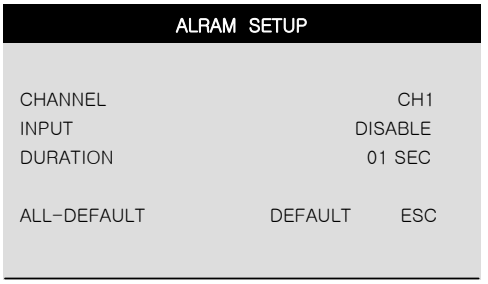
EVENT UPDATE:
Set the minimum time interval for events to be listed on EVENT LIST. If EVENT UPDATE time is set at 10 sec, only every 10 sec will system update previously happened events onto the List.

6) Alarm Setup

Set types of alarm sensors connected to DVR.
NO: Normal Open type.
NC: Normal Close type.

INPUT:
Select NORMAL OPEN, NORMAL CLOSE, or DISABLE. DISABLE represents not to use alarm sensor connected to DVR.

DURATION:
Set the duration of alarm when an ALARM is already activated by previous events.
Range = 1~99 sec.

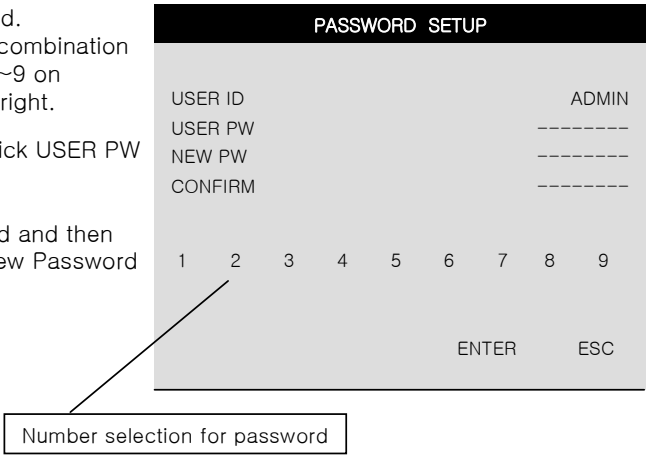


7) Password Setup

This is to setup User ID and Password.
You can make up to 8-digit number combination for a password by clicking number 1~9 on password setup menu shown on the right.

To change password, you need to click USER PW first to activate the menu.

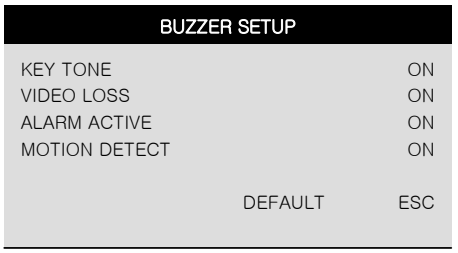
You must first input Current Password and then New Password. Finally input again New Password to confirm.



※ Changing User Password in the first operation is highly recommended.

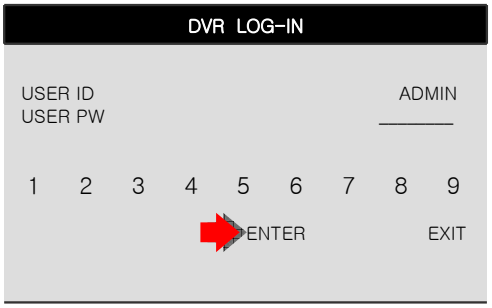
8) Buzzer Setup

To setup Buzzer audio effect for key tone, video l oss, alarm activation, and video motion detection in this menu.

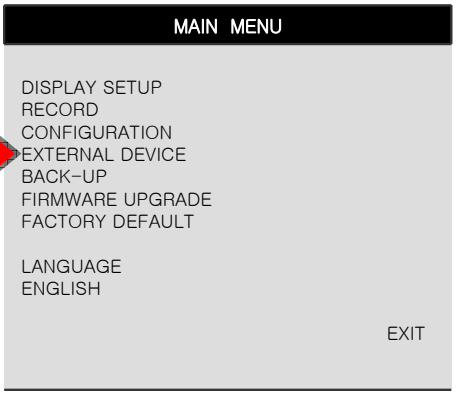


5-5. External Device Setup

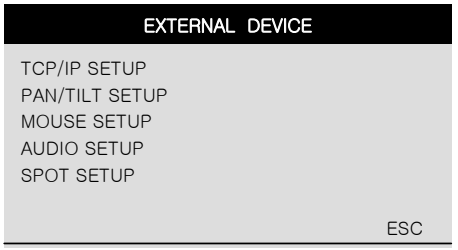
Please refer to <4-1. System Log-In> again. Then, click [Enter].



Click [External Device].

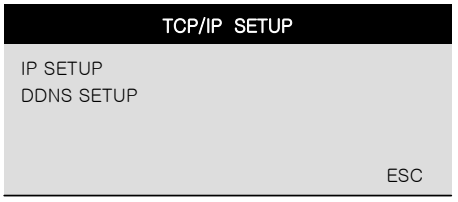


Menu on the right shows options available for system integration needs in security installation.



1) TCP/IP Setup

TCP/IP function enables user to see real-time video and to record it via the Internet.



(1) IP Setup

Window on the right shows network information assigned to DVR.

If DHCP setup status is AUTOMATIC, you can just set IP port.

If DHCP setup status is MANUAL, you must set all parameters.

If IP port number is blocked, please contact your network specialist.

IP SETUP	
MAC ADDRESS	00-0A-A2-00-FD-63
DHCP MODE	MANUAL IP DETECT
IP PORT	50000
IP ADDRESS	192.168.001.160
GATEWAY	192.168.001.001
SUBNET	255.255.255.255
	ESC

A. Static IP

A static IP address is a number (in the form of a dotted quad) that is assigned to a computer by an Internet service provider (ISP) to be its permanent address on the Internet.

Input IP address which is assigned by your ISP in IP CONFIG SETUP.

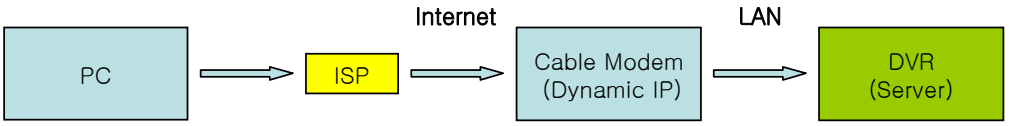
1) Verify if IP address is OK or not with PC before connecting DVR. Or send inquires to ISP that assigned IP address, GATEWAY, SUBNET MASK for you.
2) Connect LAN cable to DVR.
3) DVR: [Menu] → [DVR Log-In] → [External Device] → [TCP/IP Setup] → [IP Setup].
4) Set DHCP to MANUAL.
5) Verify if MAC ADDRESS is starting from 00-0A-A2….
6) Input the assigned IP address.
7) Set IP PORT (50000 recommended).
8) Input GATEWAY (which is assigned by your ISP).
9) Input SUBNET MASK (which is assigned by your ISP).
10) Exit setup menus.
11) Turn off and on of Modem (Router) which is provided by your ISP. This is to reset client of MAC from your ISP. Wait 30 seconds before turning on DVR again.
12) Access DVR via remote surveillance software. See <Ch 6. IRS>.

IP SETUP	
MAC ADDRESS	00-0A-A2-**-**-**
DHCP MODE	MANUAL IP DETECT
IP PORT	50000
IP ADDRESS	211.118.047.160
GATEWAY	211.118.047.001
SUBNET	255.255.255.255
	ESC

Assigned by your Internet Service Provider

* If user fails to access remotely, please verify steps 1, 6, 7, 8, 9, 11 again.

B. Dynamic IP



In contrary to Static IP address that is provided by ISP, Dynamic IP address is assigned to a computer by a remote server which is acting as a Dynamic Host Configuration Protocol (DH CP) server. IP addresses assigned by DHCP may change from time to time depending on the availability in the set scope.

Dynamic IP Addresses assigned by DHCProtocol servers are used widely because it creates efficiency within a network.

If you set AUTOMATIC for DHCP Type on TCP/IP setup menu, IP information is automatically assigned from ISP's DHCP server.

1) Verify if IP address is OK or not with PC before connecting DVR.
2) Connect LAN cable to DVR.
3) Turn off and on Modem (Router) which is provided by ISP. This is to reset client of MAC from ISP. Wait 30 seconds before turning on again.
4) Turn off and on DVR.
5) DVR: [Menu] → [DVR Log-In] → [External Device] → [TCP/IP Setup] → [IP Setup].
6) Verify if MAC ADDRESS is starting from 00-0A-A2….
7) Set DHCP to AUTOMATIC and click [IP Detect].
8) Set DHCP to MANUAL.
9) Exit setup menus after IP has been obtained successfully.
10) Access DVR via remote surveillance software. See <Ch 6. IRS>.

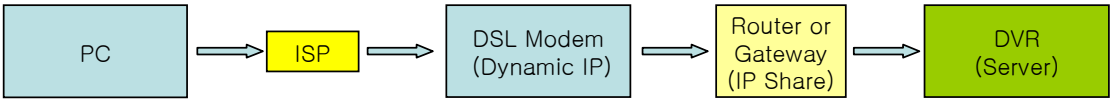
IP SETUP	
MAC ADDRESS	00-0A-A2-**-**-**
DHCP MODE	AUTOMATIC
	IP DETECT
IP PORT	50000
IP ADDRESS	211.118.047.160
GATEWAY	211.118.047.001
SUBNET	255.255.255.255
	ESC

IP SETUP	
MAC ADDRESS	00-0A-A2-**-**-**
DHCP MODE	MANUAL
	IP DETECT
IP PORT	50000
IP ADDRESS	211.118.047.160
GATEWAY	211.118.047.001
SUBNET	255.255.255.255
	ESC

Assigned by your Internet Service Provider

* If user fails to access remotely, please verify steps 1, 3, 4, 7, 8 again.

C. Dynamic IP of PPPoE (DSL)



DVR does not support DSL (PPPoE), user will need to set NETWORK with IP SHARE in order to access DVR remotely. At this time, user will need to port forward on DVR. Please contact IP SHARE manufacturer if you need to know how to forward the port.

Even though the user may have a Static/Dynamic IP, if you want to use another device (PC) through IP SHARE, set NETWORK as follows:

1) Verify if IP address is OK or not with PC before connecting DVR.
2) Connect Router (IP SHARE) to DSL Modem as shown in the following pictures.
3) Set the Internet connection on Router (IP SHARE). Please refer to the Router's manual.
4) Verify if sub-group of network in Router is OK or not.
5) Connect DVR to Router.
6) DVR: [Menu] → [DVR Log-In] → [External Device] → [TCP/IP Setup] → [IP Setup].
7) Set DHCP to AUTOMATIC and click [IP Detect].
8) Set DHCP to MANUAL.
9) Verify if MAC ADDRESS is starting from 00-0A-A2….
10) Set IP PORT (50000 recommended).
11) Exit setup menus.
12) Forward port from Router (refer to the next page).
13) Access DVR with external IP and Port (Port forwarded).

* If Router supports DDNS, user can access Remote Viewer using Domain Information.

IP SETUP	
MAC ADDRESS	00-0A-A2-**-**-**
DHCP MODE	AUTOMATIC
	IP DETECT
IP PORT	50000
IP ADDRESS	192.168.001.160
GATEWAY	192.168.001.001
SUBNET	255.255.255.255
	ESC

IP SETUP	
MAC ADDRESS	00-0A-A2-**-**-**
DHCP MODE	MANUAL
	IP DETECT
IP PORT	50000
IP ADDRESS	192.168.001.160
GATEWAY	192.168.001.001
SUBNET	255.255.255.255
	ESC

* If user fails to access remotely, please verify steps 1, 4, 7, 8, 12 again.

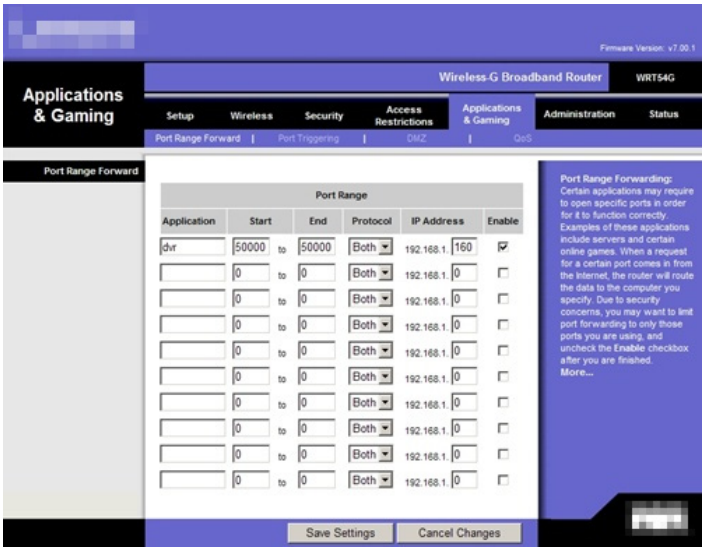
If you are using a Router, please set up DMZ and Port Forwarding with instructions in the followings:

[How to set DMZ]
> Set DMZ as per router manual, if you want to connect a DVR by using one Internet line.
> Setting procedures and name of DMZ may vary according to Router manufacturers.
> For more information, please refer to Router's manual.

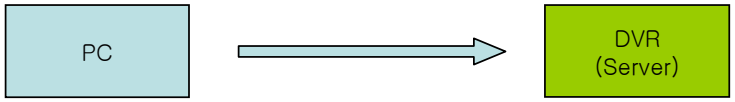
Example:
1) Access to your Router. Refer to Router's manual provided by its manufacturer.
2) Find [Applications & Gaming] and go to DMZ.
3) Click [Enable] and input IP address on DMZ Host IP Address.
4) Click [Save Settings] and exit.

[How to do Port Forwarding]
> Set Port Forwarding as per router manual, if you want to connect several DVRs by using one single Internet line.
> Setting procedures and names of Ports may vary according to Router manufacturers.
> For more information, refer to Router's manual.

Example:
1) Access to your Router. Refer to Router's manual provided by its manufacturer.
2) Find [Applications & Gaming] and go to [Port Range Forward] on the menu.
3) Input Port number of your DVR on Start/End section below.
4) Input IP Address and check [Enable]. Then, click [Save Settings] to exit.


Applications & Gaming
Wireless-G Broadband Router
WRT54G
Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administration
Status
Port Range Forward | Port Triggering | DMZ | QoS
Port Range Forward
Port Range
Application
Start
End
Protocol
IP Address
Enable
dvr
50000
50000
Both
192.168.1.
160
Port Range Forwarding: Certain applications may require to open specific ports in order for it to function correctly. Examples of these applications include servers and certain online games. When a request for a certain port comes in from the Internet, the router will route the data to the computer you specify. Due to security concerns, you may want to limit port forwarding to only those ports you are using, and uncheck the Enable checkbox after you are finished.
More...
Save Settings
Cancel Changes

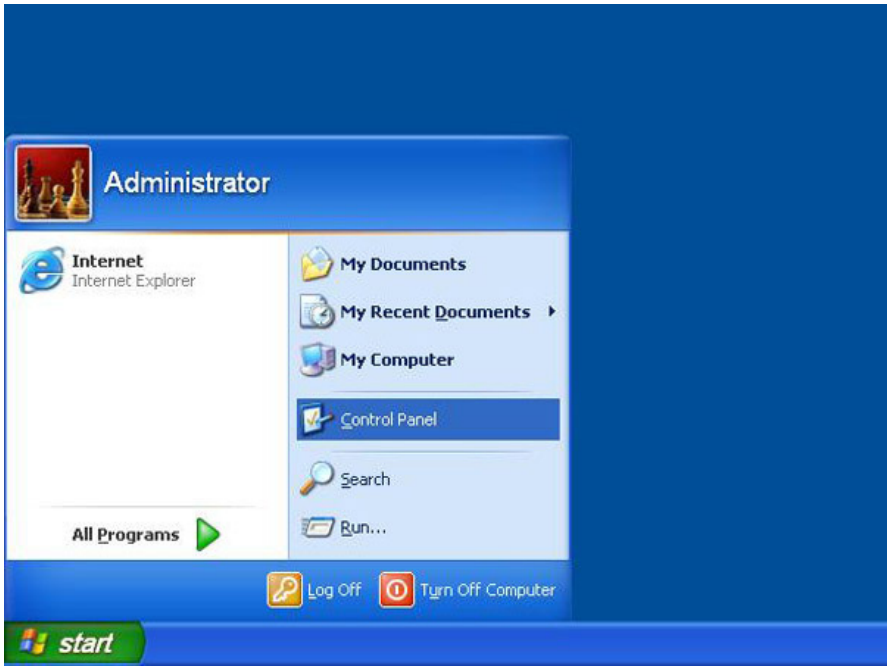
D. Direct connect to DVR



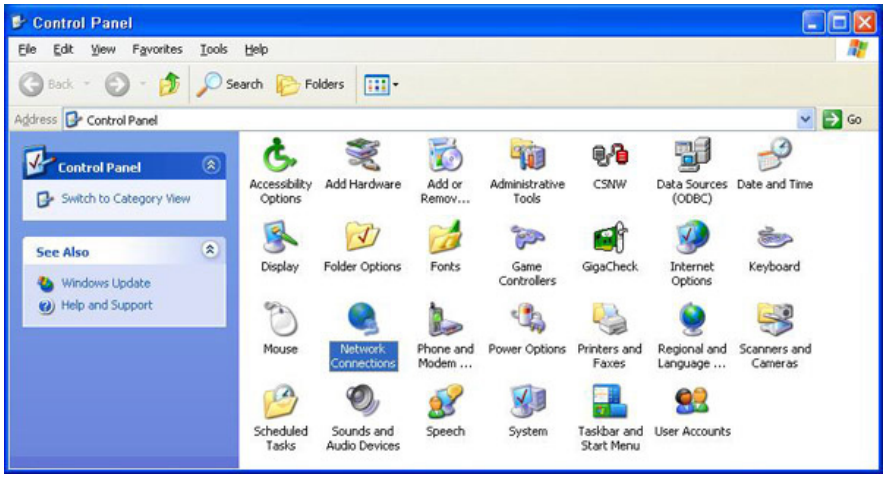
When you try to connect to DVR directly, you must use DIRECT CABLE.

a. PC's TCP/IP Setting

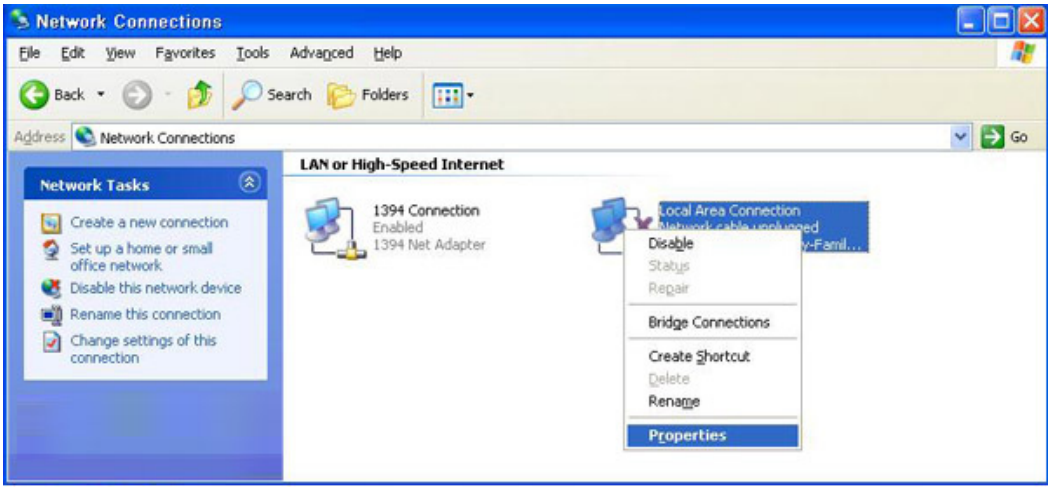
a) For WindowsXP/2000, Click [Start] then [Control Panel].



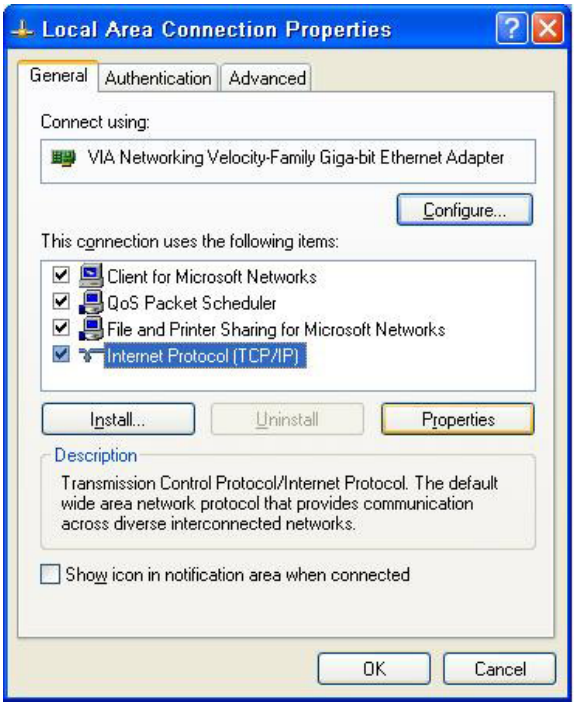
b) Double-click [Network Connections].



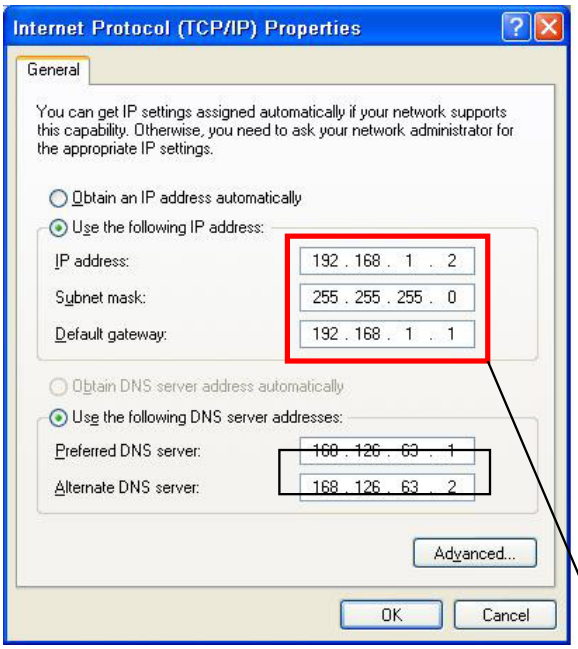
c) Right-button click [Local Area Connection].



d) Locate [Internet Protocol (TCP/IP)] then click [Properties].



e) IP Address Setting


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 1 . 2
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 192 . 168 . 1 . 1
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server: 168 . 126 . 63 . 1
Alternate DNS server: 168 . 126 . 63 . 2
Advanced...
OK
Cancel

IP Address: AAA.BBB.CCC.DDD
AAA~CCC is identical with DVR's setting
DDD with DVR's setting is NOT the same

Subnet mask MUST be 255.255.255.0

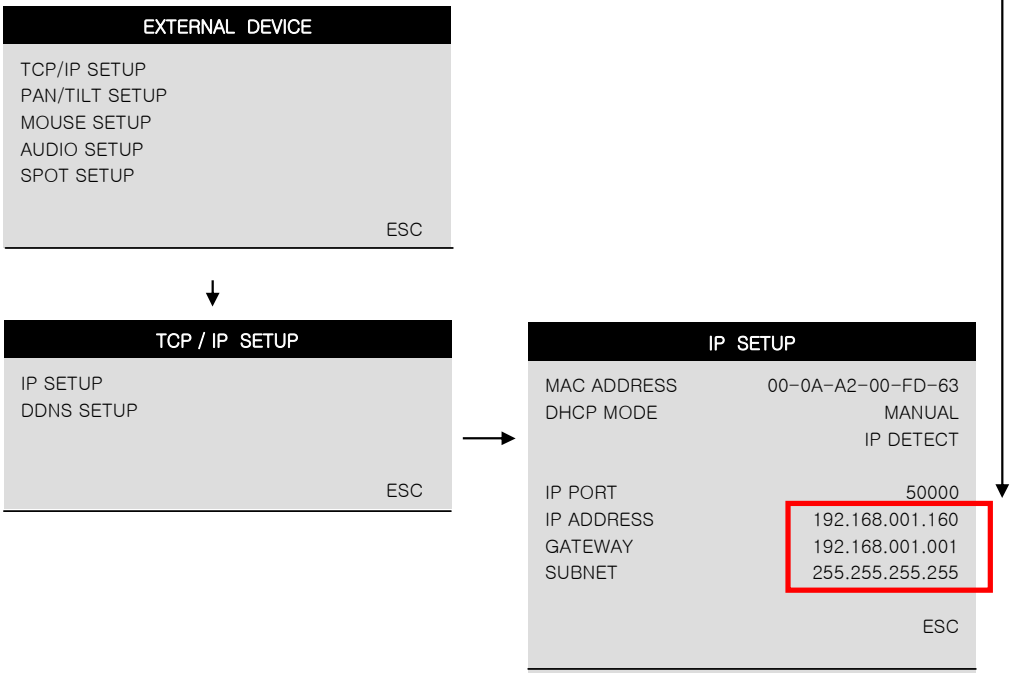
Default gateway is AAA.BBB.CCC.1
AAA~CCC is identical with HUB's address

DNS Server is different in countries and ISPs. When PC does not using Internet, and if it does not input, it is irrelevant.

setting example

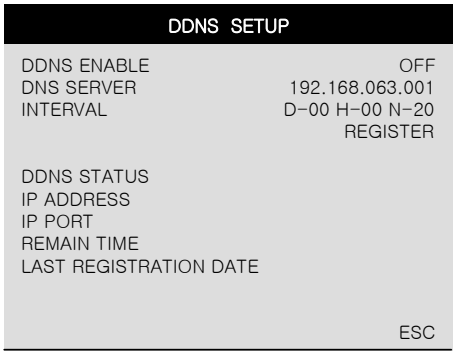
b. DVR Setting

a) Re-affirm DVR setting



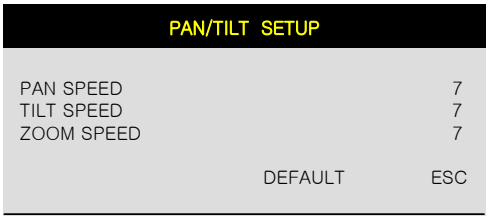
b) DDNS Setup:

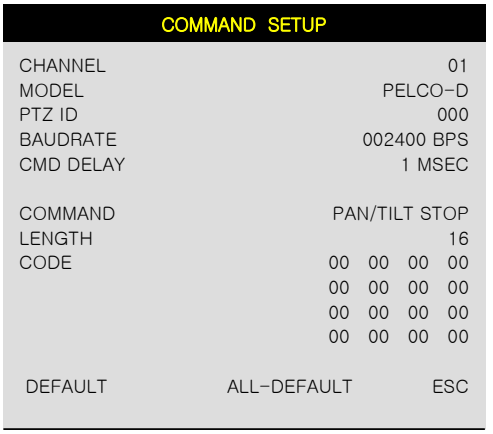
See <7-2. DDNS Setup> in DVR on page 53.



2) Pan/Tilt Setup

← PTZ Camera setup
← PTZ Speed setup

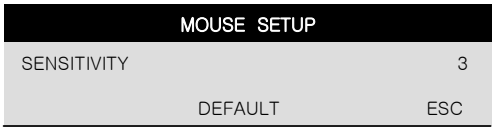




(1) CHANNEL: Selects channel
(2) MODEL: Selects camera model (protocol type) for each channel
(3) PTZ ID: Selects PTZ ID for each channel
(4) BAUDRATE: Selects data transmission speed
(5) CMD DELAY: Selects command delay time

3) Mouse Setup

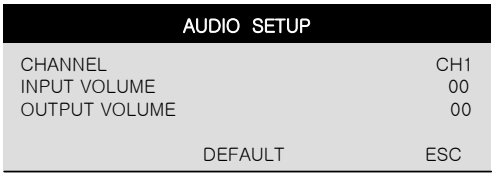
The higher the sensitivity is, the faster the mouse cursor will be.



4) Audio Setup

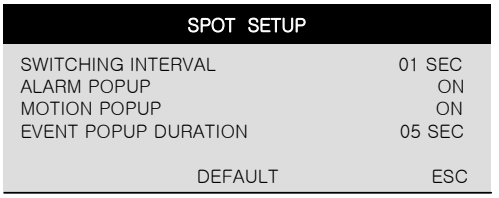
If you select a channel, the audio of the selected channel is recorded.

(1) CHANNEL: By selecting a channel, you can set audio recording ON/OFF.
(2) INPUT VOLUME: Volume setup for microphone
(3) OUTPUT VOLUME: Volume setup for speaker



5) SPOT Setup

(1) SWITCHING INTERVAL
Channel switching time (01 ~ 99 sec)
(2) ALARM POP-UP
When ALARM is detected, the image of channel connected with Alarm sensor pops up.
Set ALARM detection pop-up (ON/OFF)
(3) MOTION POP-UP
Set MOTION detection pop-up (ON/OFF)

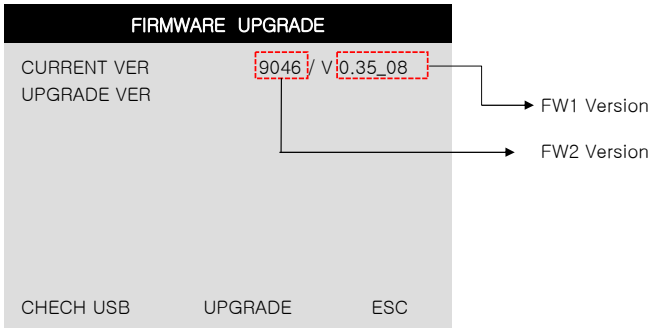


※ Event Pop-Up Duration

If events (MOTION or ALARM) happen on several channels at the same time, Ch1 has the first priority to pop up. For example, if events happen on Ch1, Ch2, and Ch4 at the same time, Ch1 pops up. If motion disappears on Ch1, then Ch2 pops up for the time-duration that you set. However, even though motion happens on Ch1 again within the duration, Ch2 still displays. If motion on Ch1 keeps on going even after the duration, Ch1 pops up again.

5-6. Firmware Upgrade

Please check authorised dealer in your area for firmware upgrade availability.

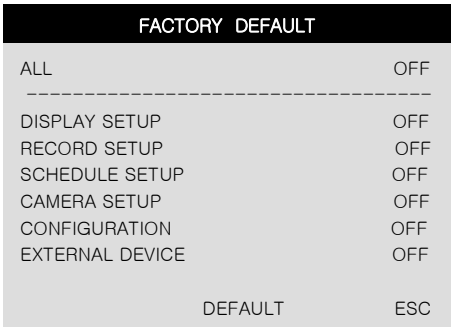


5-7. Factory Default

First operation of DVR is based on Factory Default.

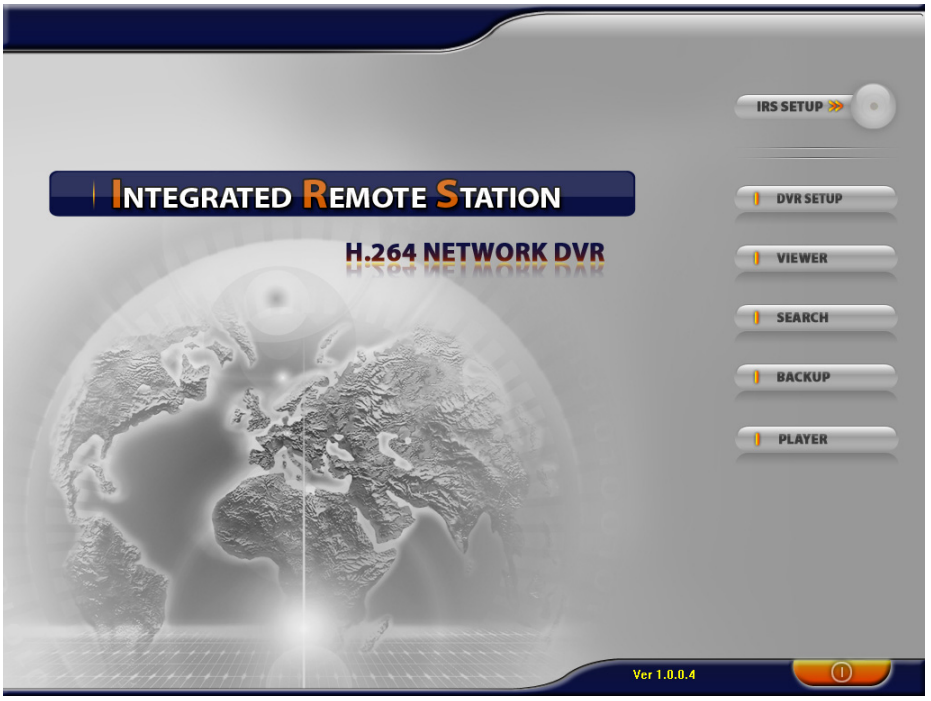
Select categories below that you want to re-set then choose [On]. Finally click [Default] to implement.

See <4-2. Factory Default> for details.



CH 6. IRS (Integrated Remote Station)

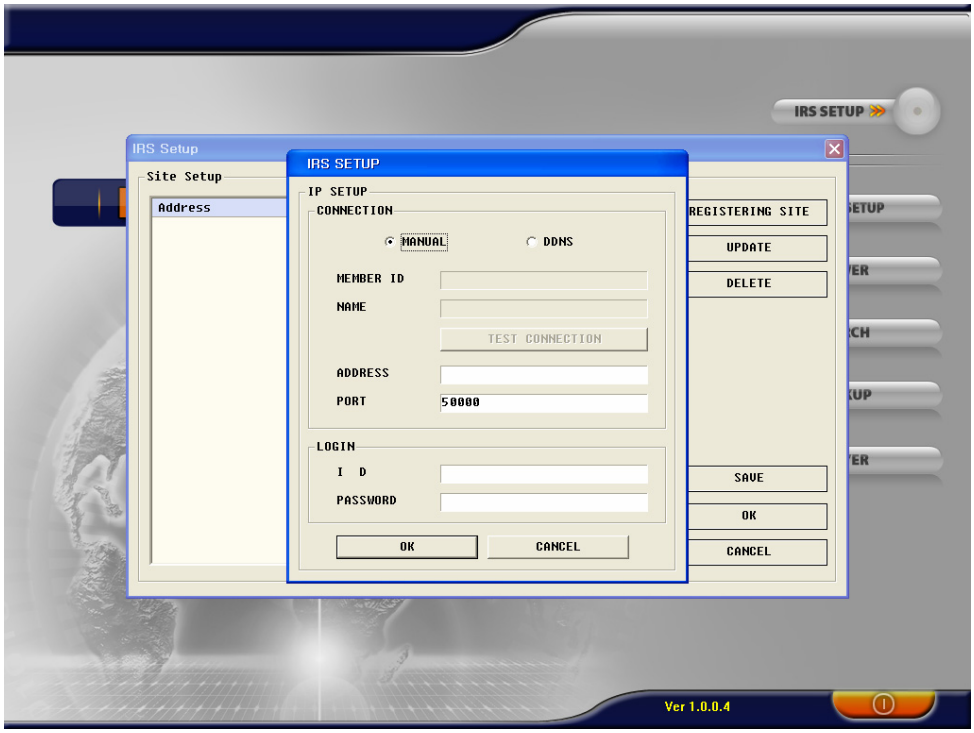
MAIN USER INTERFACE



Exit

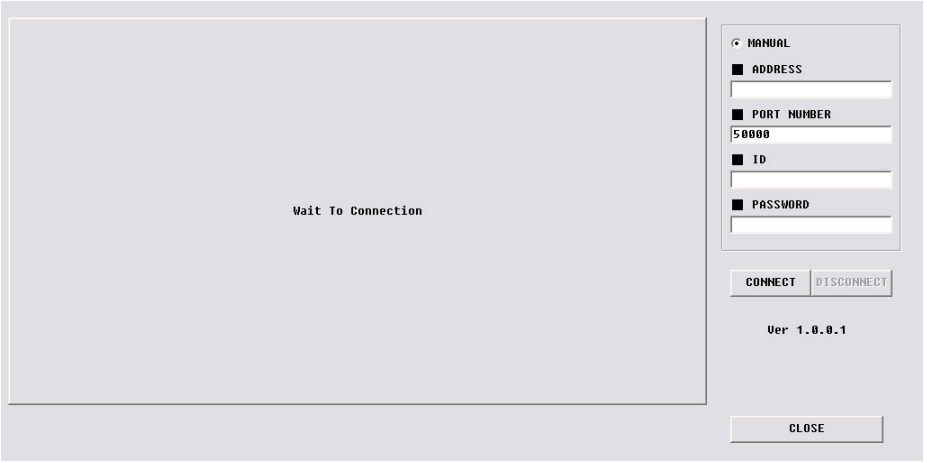
IRS SETUP	Inputs information for IRS network connection.
DVR SETUP	Changes DVR setting over a network.
VIEWER	Enables to show live image display.
SEARCH	Enables to search and show recorded image display.
BACKUP	Enables to back up recorded images in DVR to your PC.
PLAYER	Enables to play the backup images on your PC (AM4 file).

6-1. IRS Setup



MANUAL	Select Manual to input IP address and port number manually.
DDNS	Select DDNS to use IP address and port number that you already registered in DDNS server. For more information about DDNS, see <Ch 7. DDNS Web-Server>.
MEMBER ID	Input member ID that you registered in DDNS server.
NAME	Input DVR name that you registered in DDNS server.
ADDRESS	Input IP address manually.
PORT	Input port number manually.
LOGIN	
ID	Input DVR ID which has been set in DVR already.
Password	Input password of DVR.

6-2. DVR Setup



You can change some settings of DVR listed below over a network.

(Alarm, Buzzer, Interval, Record Configuration, Record Schedule, Audio)

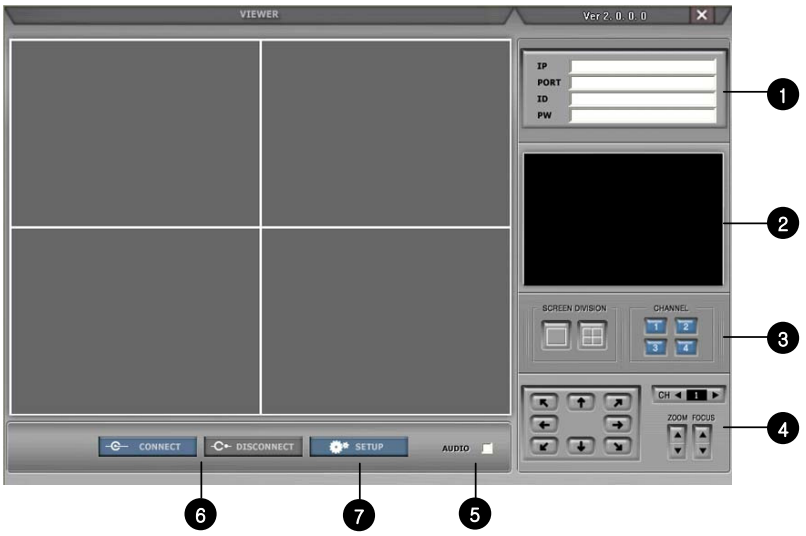
MANUAL Input IP address and port number of DVR manually.

ADDRESS Input IP address of DVR manually.
PORT NUMBER Input port number of DVR manually.

LOGIN
ID Input DVR ID which has been set in DVR already.
PASSWORD Input password of DVR.

CLOSE Click [Close] to exit.

6-3. Viewer



1 DVR Connection Setup
Input network information to connect (IP/PORT/ID/PW).

2 System Information
Displays connection status and operating information.

3 Screen Display
SCREEN DIVISION: Selects full screen mode or 4-Split mode
CHANNEL: Displays full screen for each channel.

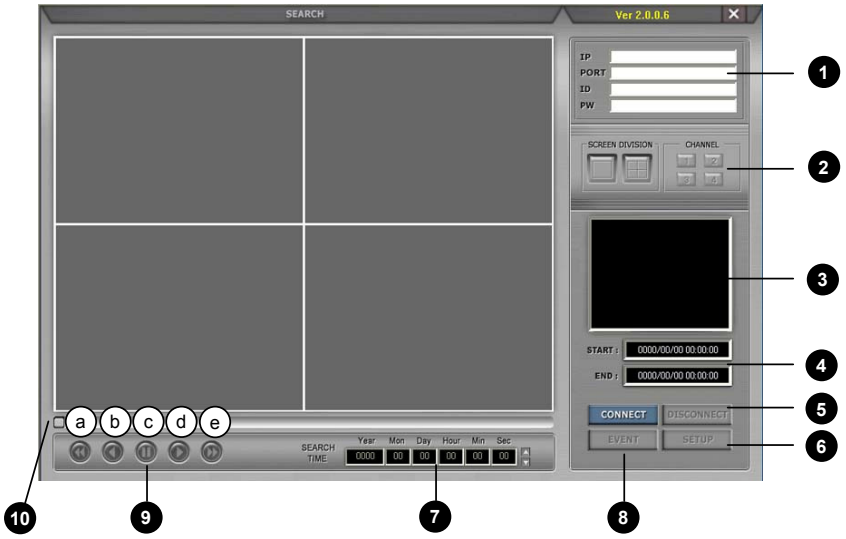
4 PTZ Control
Controls PTZ camera remotely. In order to control PTZ camera, PTZ setting in DVR must be completed in advance.

5 Audio
Setup audio on/off.

6 Network Connection
CONNECT: Click this button to connect to DVR and see real-time view over a network.
DISCONNECT: Click this button to disconnect.

7 Network Setup
Click this button to setup Video Quality (see page 24), Frame Rate (see page 24), and Baudrate (network transmission bit rate per second; the higher the rate is, the better transmitted video quality will be; the better the transmitted video quality is, the slower the effective transmission speed will be).
Read: Load previous settings.
Write: Apply new settings.
Please note, settings over this section (remote site) will affect settings over DVR (local site).

6-4. Search



1 **DVR Connection Setup**
Input network information to connect (IP/PORT/ID/PW).

2 **Screen Display**
SCREEN DIVISION: Selects full screen mode or 4-Split mode.
CHANNEL: Displays full screen for each channel.

3 **System Information**
Displays connection status and operating information.

4 **Recorded Data Display**
Displays start time & end time of recorded data.

5 **Network Connection**
CONNECT: Click this button to connect to DVR and see real-time view over network.
DISCONNECT: Click this button to disconnect.

6 **Setup**
Setup baudrate (network playback speed) in terms of bit rate per second.

7 **Search Time**
Input time and date to search images.

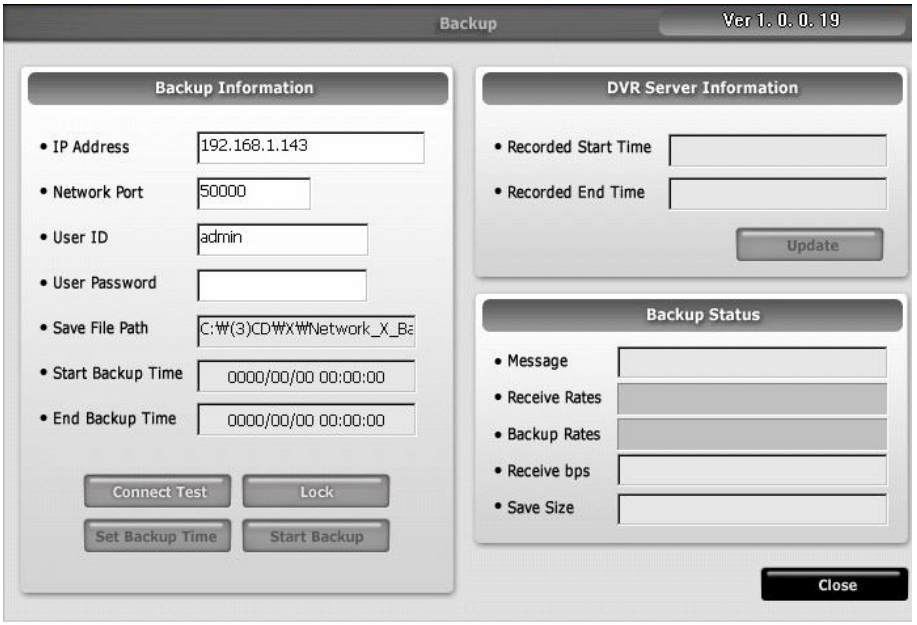
8 **Event Search**
Search by event types (e.g., video motion detection) and double-click to playback .

9 **Operation Buttons**
a. Fast backward playback
b. Backward playback
c. Pause
d. Forward playback
e. Fast forward playback

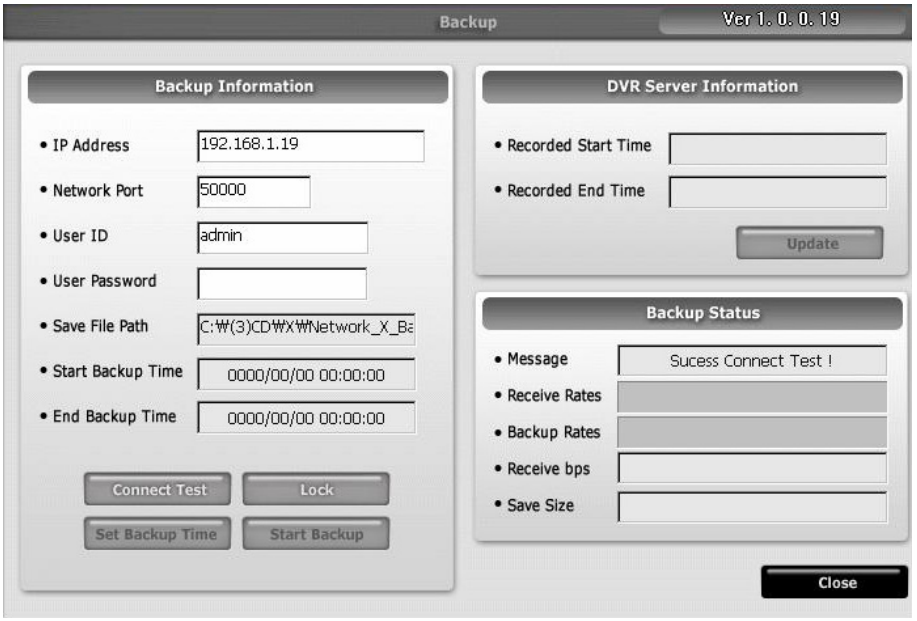
10 **Search Bar**
Enables to search recorded data by using this bar.

6-5. Backup

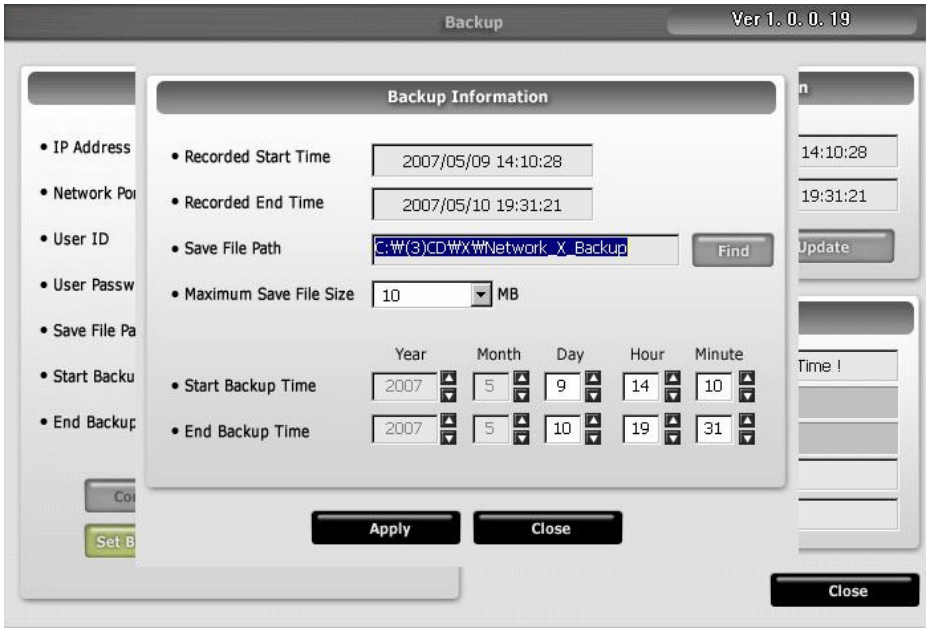
1) To execute Back-Up, input IP address and Port and click [Connect Test] button.



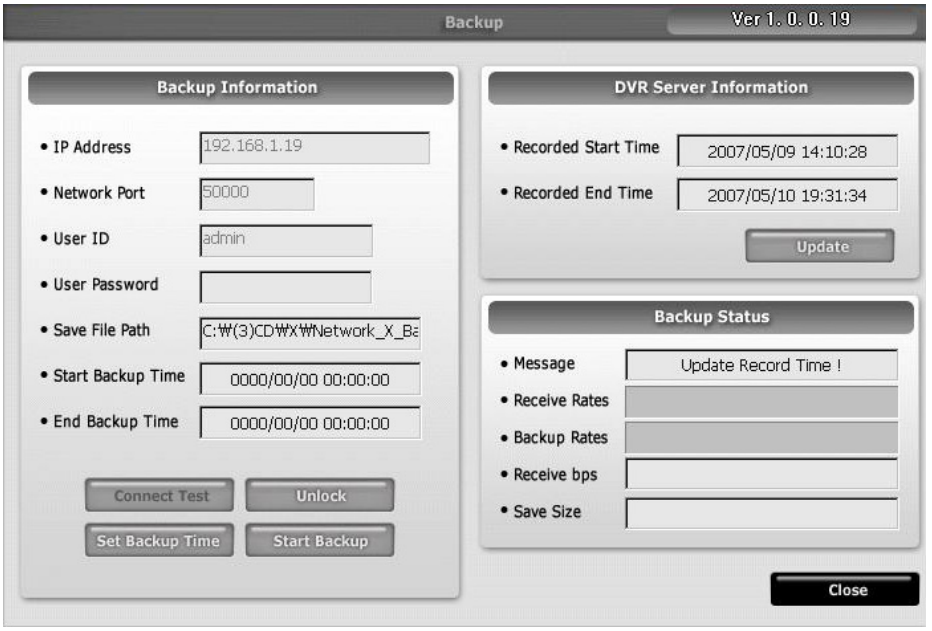
2) After [Connect Test] is done, you can see Success Connect Test! message. Then, click [Lock] button and click [Set Backup Time] button.



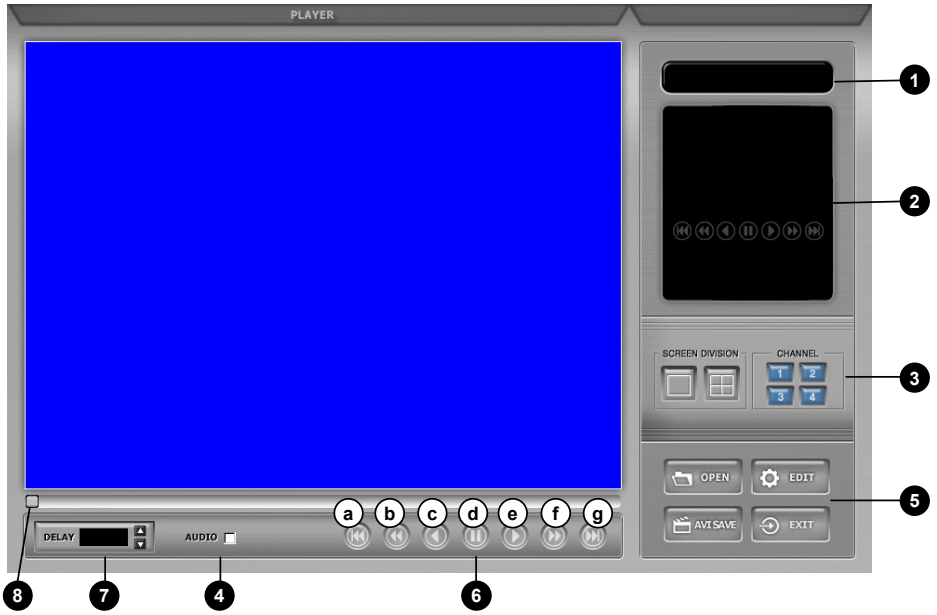
3) Now you set Start Backup Time, End Backup Time, Save File Path, File Size, and click [Apply] button.



4) Click [Start Backup] to start. Then, you can see the back-up file in the path chosen.



6-6. Player



1 **Time Display**
Displays current time.

2 **Recorded Data Display**
Displays start time & end time of recorded data.
Also, displays operating status during playback.

3 **Screen Display**
SCREEN DIVISION: Selects full screen mode or 4-Split mode.
CHANNEL: Displays full screen for each channel.

4 **Audio**
Set Audio ON/OFF.

5 **Operation Buttons I**
OPEN: Selects backup AM4 file.
EDIT: Enables to edit backup image, save and print.
Edit function is available when one channel is selected.
AVI SAVE: Save backup images in AVI file format.
AVI save function is available when one channel is selected.
EXIT: Ends backup player.

6 **Operation Buttons II** - Search for recorded data.
a) Go to the beginning of recorded data and play.
b) Fast backward playback.
c) Backward playback.
d) Pause.
e) Forward playback.
f) Fast forward playback.
g) Go to the end of recorded data and play.

7 **Playback Speed Setting Button**
Able to adjust playback speed by using upper/ lower buttons.
DELAY: Adjusts playback interval. The higher the value is, the slower the playback speed will be (1, 2, 4, 8, 16, 32).

8 **Play Bar**
Enables to search recorded data by using this bar.

IMAGE EDIT

Click [Edit] to go into image editing mode.

❶ **EDIT TOOL:** User can adjust color tones of copied images by using following buttons:

Contrast
- Make bright part of image brighter and dart part of image darker.
- To reduce light and shade, lower contrast a little.

Brightness
- Make an image brighter.
- Make an image darker.

Sharpness
- Gives sharp-edge effect.

Blur
- Make an image soft.

Operation buttons
- Saves data in JPEG file format.
  It is saved in the folder where player is installed (e.g., C:₩WEB_BACKUP).
- User can print current image selected.

❷ **EDIT**

Return to Player mode.

AVI SAVE

Click AVI SAVE to go to AVI saving mode.

❶ **OPTION** Used to save data in AVI file format.
CHANNEL Selects channel.
FRAME RATE Decides frames per second of data to be saved.
SIZE Decides the size of data to be saved automatically.
START Starts saving.
STOP Stops saving. Once it is stopped, C:₩WEB_BACKUP folder is opened automatically.

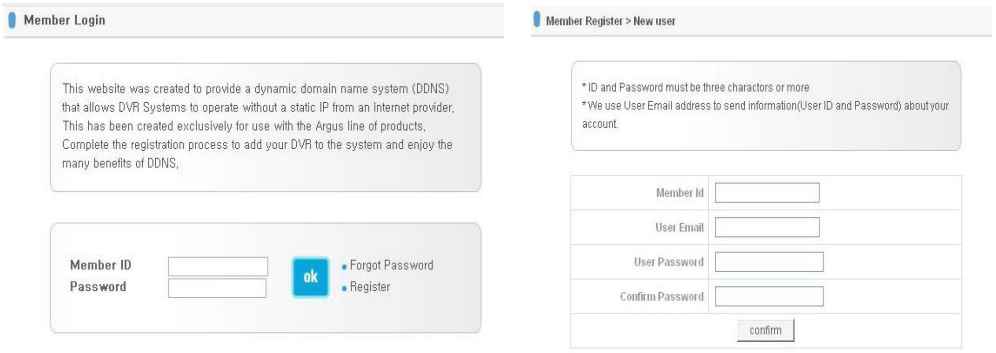
❷ **AVI SAVE** Opens Option setting to start AVI saving.
Closes Option setting after finishing AVI saving and go back to player mode.

CH 7. DDNS Web-Server

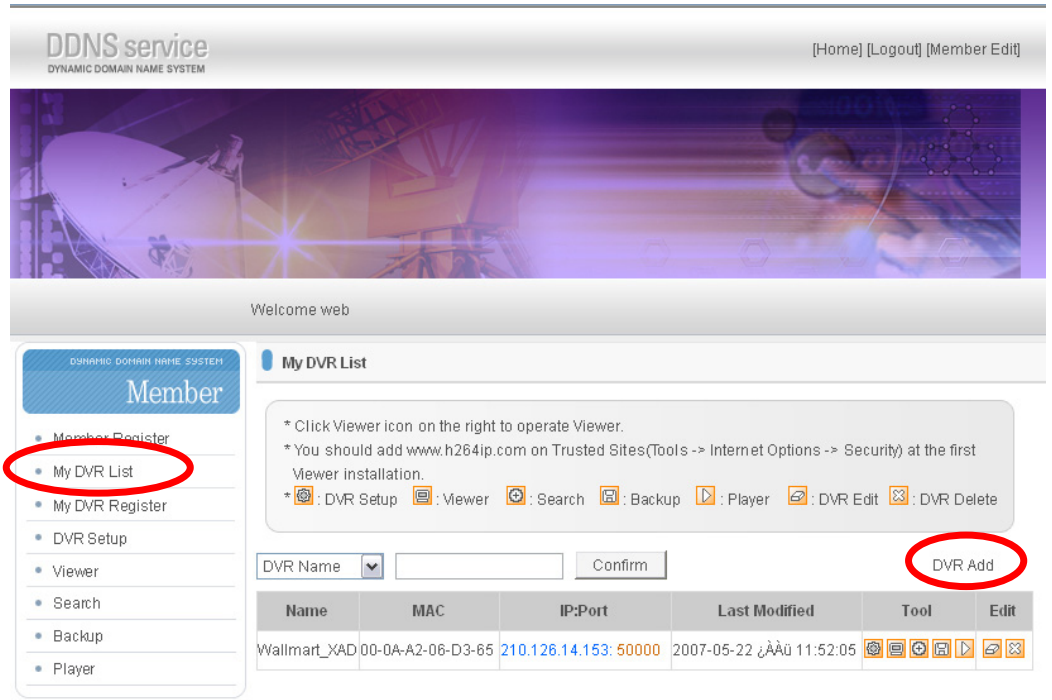
7-1. Registering DVR for DDNS (DDNS Web-Server)

DDNS Web-Server allows you to access your DVR via web browser (e.g., Internet Explorer) from anywhere (e.g., laptops, cyber cafes) in the world. The advantage is, installation of IRS surveillance programme is not pre-required.

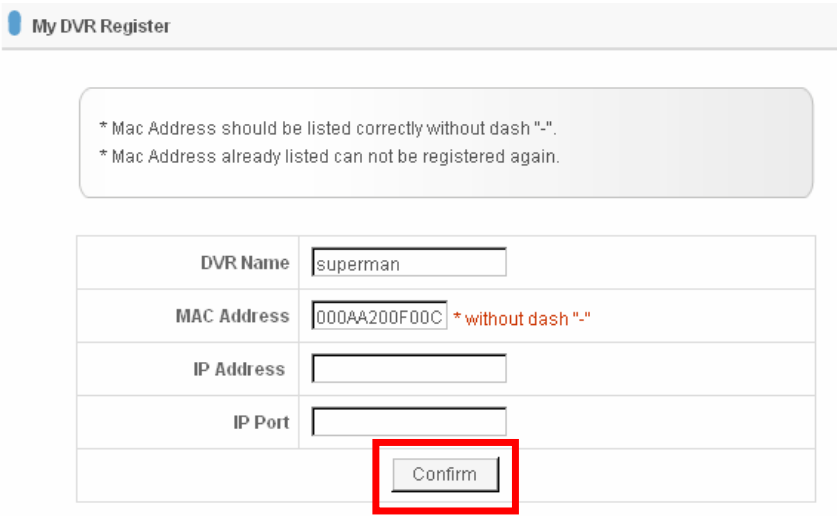
1) Open web browser and access www.h264ip.com. Click [Register Member ID].


Member Login
This website was created to provide a dynamic domain name system (DDNS) that allows DVR Systems to operate without a static IP from an Internet provider. This has been created exclusively for use with the Argus line of products. Complete the registration process to add your DVR to the system and enjoy the many benefits of DDNS.
Member ID
Password
ok
Forgot Password
Register
Member Register > New user
* ID and Password must be three charactors or more
* We use User Email address to send information(User ID and Password) about your account.
Member Id
User Email
User Password
Confirm Password
confirm

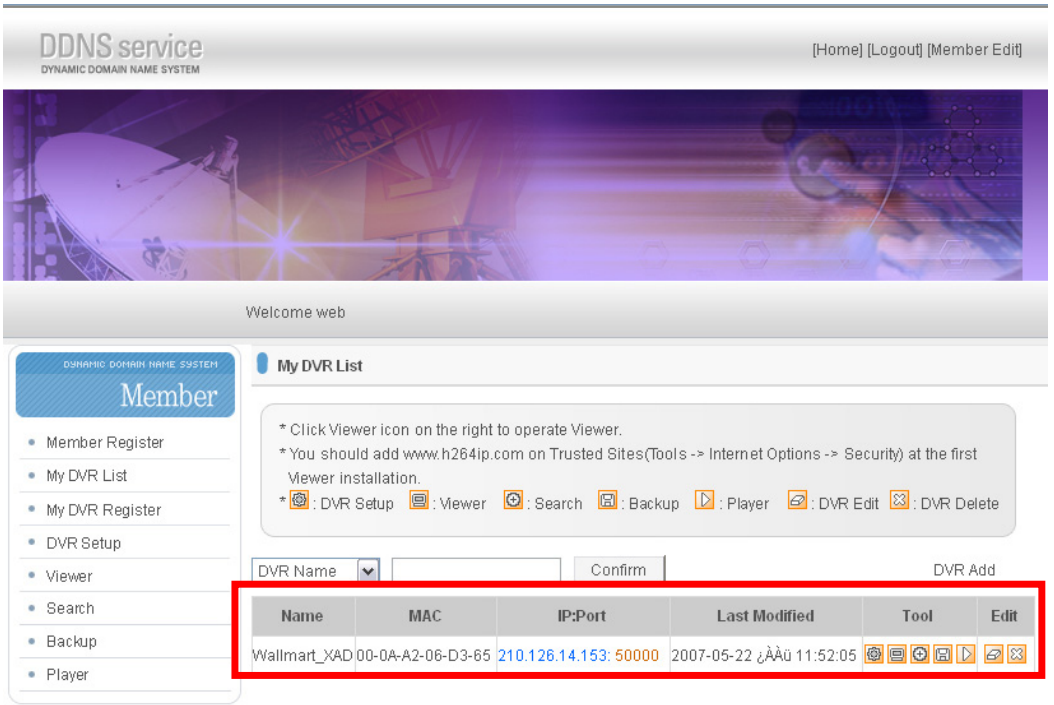
2) Click [DVR Add] or [MY DVR Register] to register your DVR.



3) Input DVR information (DVR name and MAC address ONLY), then click [Confirm] button.



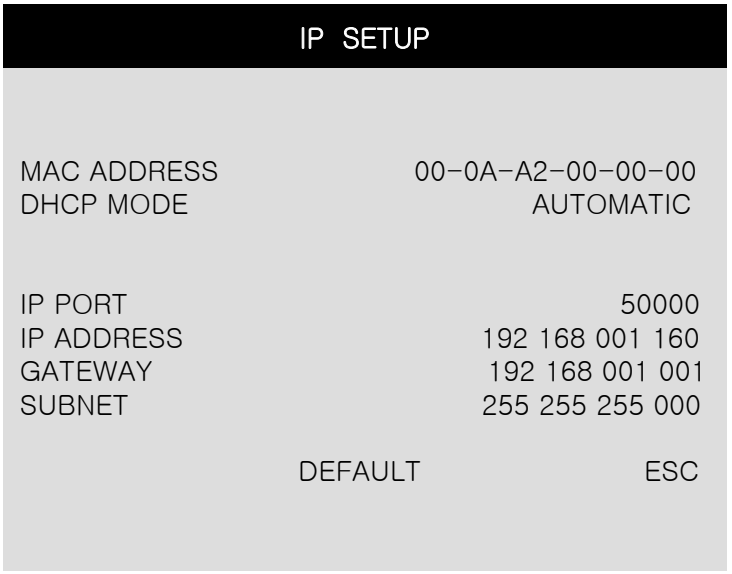
4) Now, DVR is listed on DDNS Web-Server without IP and Port number.



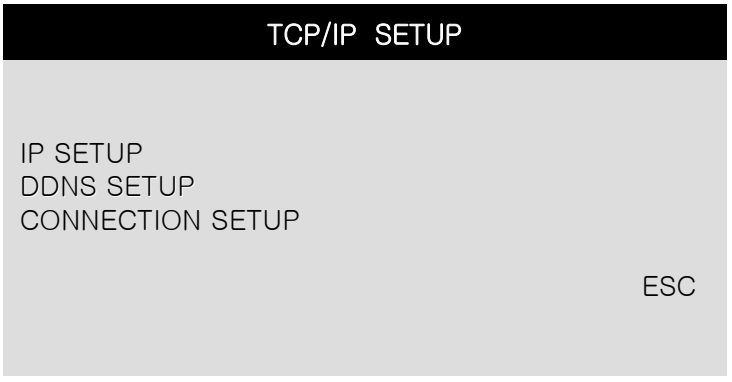
7-2. DDNS Setup in DVR

Following setting is a sample for a Cable Modem connected to DVR directly.

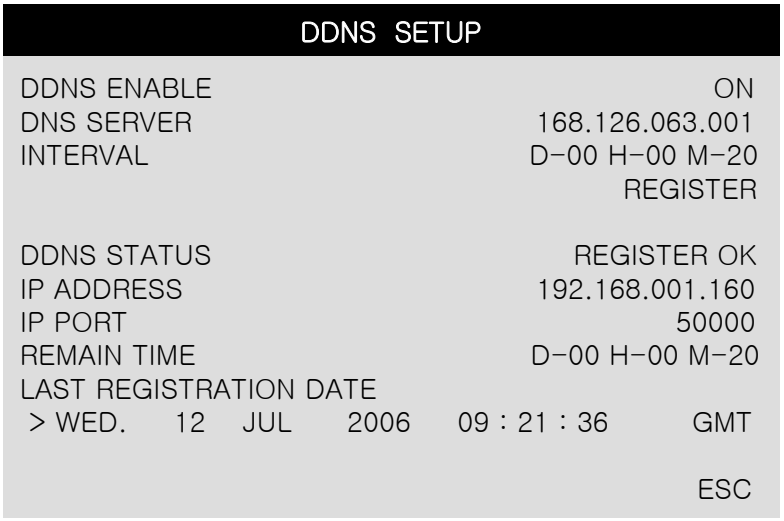
1) Go to [Main Menu].
2) Go to [IP Setup] menu. If you set DHCP AUTOMATIC, then it detects IP address automatically.



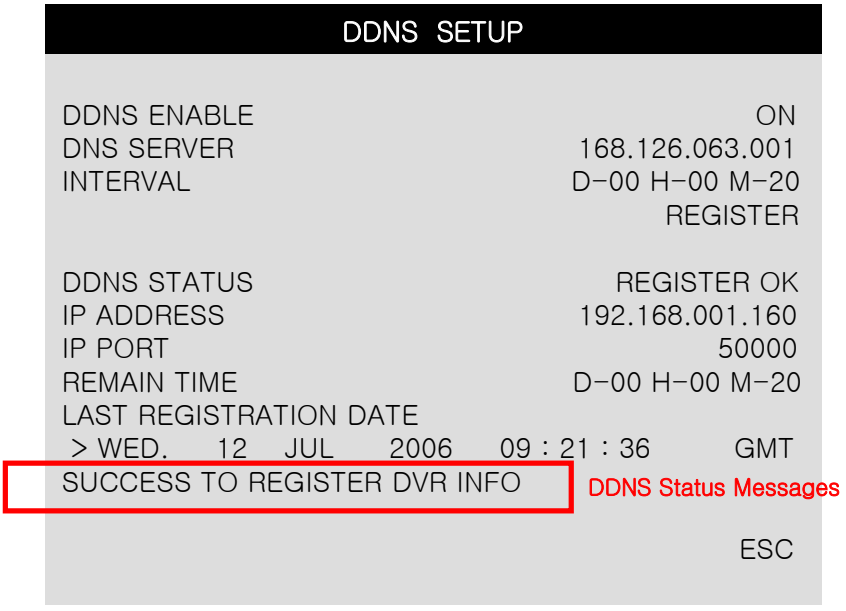
3) Go to the previous menu and click [DDNS Setup].



4) Set DDNS ON/OFF as ON.
IP address which is assigned by DHCP Server is automatically input on DNS SERVER.



5) Go down to [Register] and click [Enter] button to renew IP registered on DDNS SERVER.
Interval = connection interval time between DVR and DDNS SERVER.
D = day, H = hour, M = minute.

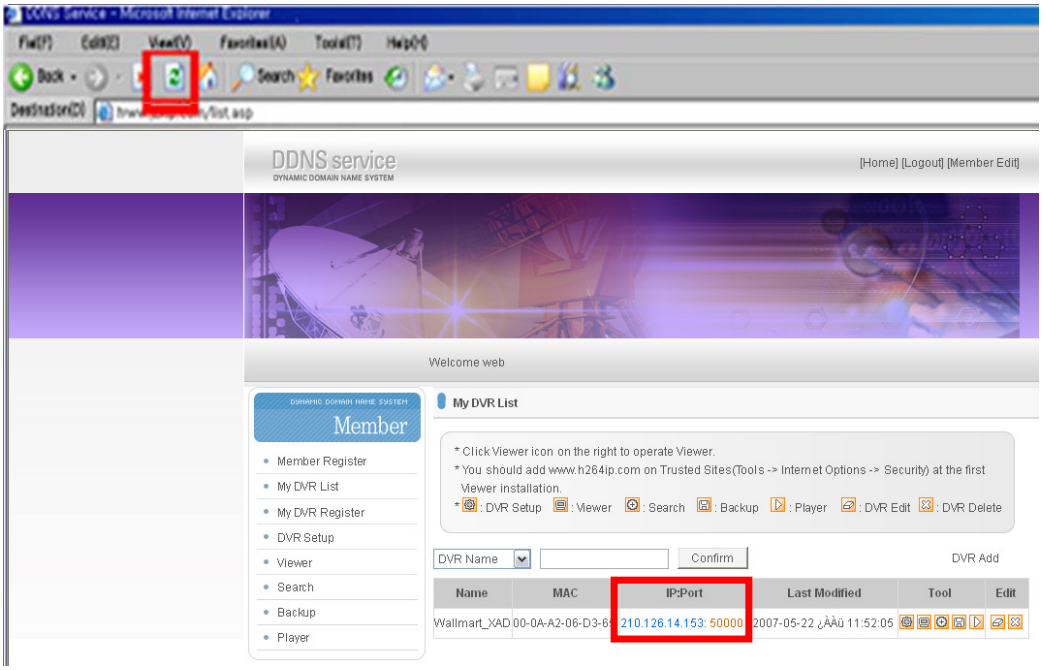


DDNS Error Messages

FAIL TO COMMUNICATE WITH DDNS SERVER :
In this case, check out whether DNS server IP address is 168.126.063.001. If the IP address is the same, please try another DNS server IP address provided by your ISP.

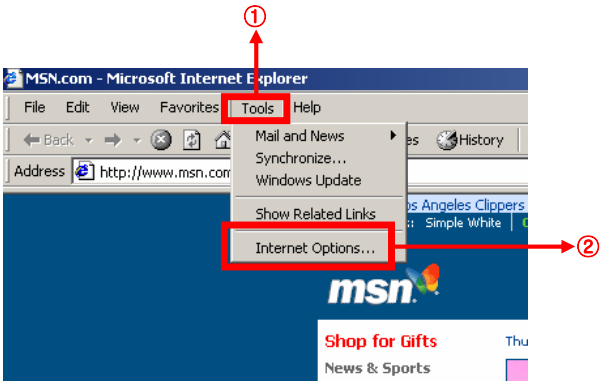
FAIL TO REGISTER DVR INFO :
In this case, please check out whether you have registered your DVR in www.h264ip.com. Also check out whether your MAC address in your DVR is the same as the one that has been registered in www.h264ip.com.

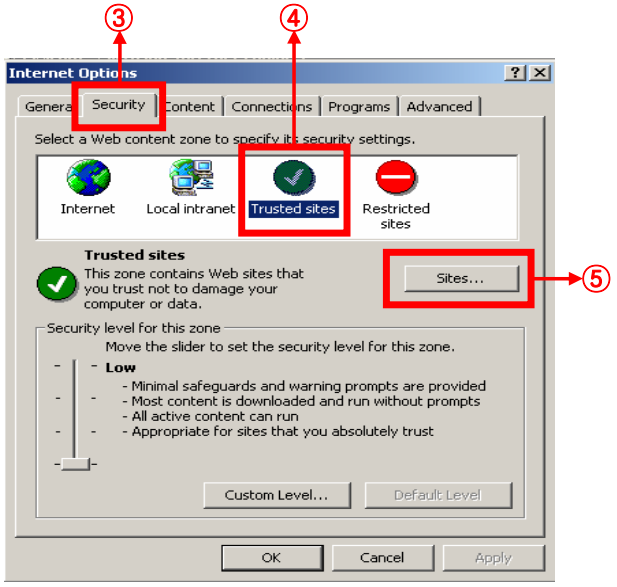
6) Go to your computer again. After seeing SUCCESS TO REGISTER DVR INFO message, click [Refresh] button. Then, DDNS Server automatically catches your DVR's IP address and Port number.

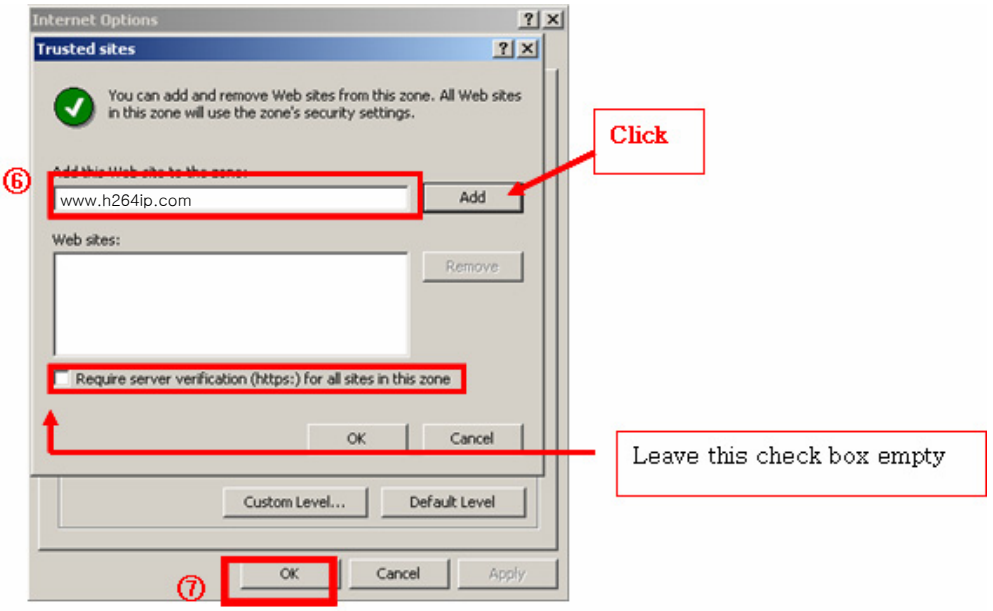


Note:

Before using Web-Viewer, please add www.h264ip.com on Trusted Sites at first installation as follows: [Tools] > [Internet Options] > [Security]




③
④
Internet Options
General
Security
Content
Connections
Programs
Advanced
Select a Web content zone to specify its security settings.
Internet
Local intranet
Trusted sites
Restricted sites
Trusted sites
This zone contains Web sites that you trust not to damage your computer or data.
Sites...
⑤
Security level for this zone
Move the slider to set the security level for this zone.
Low
- Minimal safeguards and warning prompts are provided
- Most content is downloaded and run without prompts
- All active content can run
- Appropriate for sites that you absolutely trust
Custom Level...
Default Level
OK
Cancel
Apply


Internet Options
Trusted sites
You can add and remove Web sites from this zone. All Web sites in this zone will use the zone's security settings.
⑥
www.h264ip.com
Add
Click
Web sites:
Remove
Require server verification (https:) for all sites in this zone
OK
Cancel
Leave this check box empty
Custom Level...
Default Level
⑦
OK
Cancel
Apply

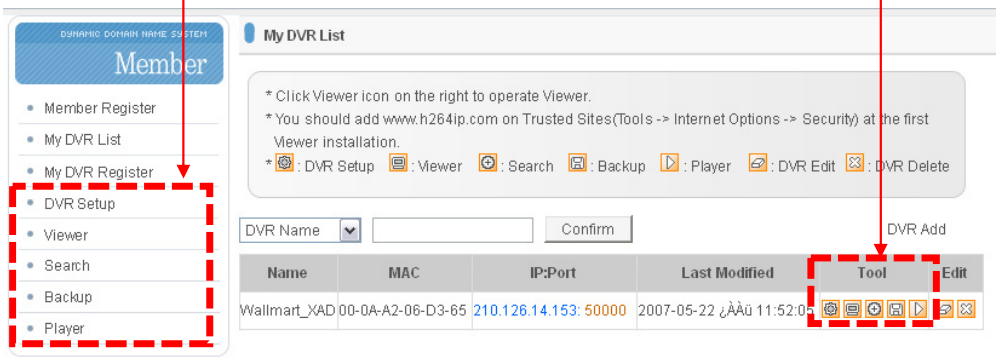
7-3. Web program

Some functions of IRS (Integrated Remote Station) such as Viewer, Search, Backup and Player are also available on the web.

*If ActiveX control installation is required for the first time access, please click [Yes].

Click and input information needed for internet connection to DVR manually.

Click these icons, then it connects to DVR automatically via DDNS Server.



These functions such as Viewer, Search, Backup and Player are same as the ones in IRS.

See <Ch 7. IRS> from page 47 to 51.

DVR Setup	Enables to setup DVR remotely.
Viewer	Enables to show live image display.
Search	Enables to search and show recorded image display.
Backup	Enables to back up recorded images in DVR to your PC.
Player	Enables to play the backup images on your PC (AM4 file).

CH 8. Specification

H.264 Hardware-Based Codec for Superior Video Compression

Real-Time Full-D1 4CH at 120 FPS

SATA Interface for High-Speed Reliable Recording on HDD

User-Friendly OSD Operation with 15 Languages Supported

Intelligent Video Content Analysis with Wide SI Capabilities

Remote Surveillance via Smart & Functional Software

MONITORING

Video Input	Composite: 4 x BNC
Video Output	2 x Composite (1 x CRT / 1 x SPOT), 1 x VGA
Display Resolution	720 x 480 / 720 x 576
Display Rate	Real-Time 120 / 100 fps
Features	4-Split, Sequencing (SEQ), Picture-in-Picture (PIP), Freezing (FRZ)

RECORDING & PLAYBACK

Compression	H.264 Hardware-Based Codec
Recording Resolution	360 x 240 / 360 x 288
Recording Rate	Real-Time 120 / 100 fps
Recording Quality	5 x Levels (Highest, High, Normal, Low, Lowest)
Playback Rate	Real-Time 120 / 100 fps
Recording Mode	Emergency (Manual), Scheduled (Round-the-Clock [RTC], Motion, Alarm)
Search Mode	Percentage, Date/Time, Event (Motion, Alarm, Video Loss)
Features	Video Motion Detection (VMD), Digital Zoom (2X)

SYSTEM

Operating System	Embedded Linux Built-In Flash Memory
Languages	Chinese, Czech, Dutch, English, French, German, Greek, Italian, Japanese, Korean, Polish, Portuguese, Russian, Spanish, Ukrainian
Storage	1 x SATA HDD Slot
Data Export Medium	1 x USB 2.0 Slot
HDD Management	Status, Format, Overwrite
Features	Firmware Upgrade (USB FlashDrive)

NETWORK

Connection	1 x RJ-45 Ethernet
Protocols	Static IP, Dynamic IP, TCP/IP
Remote Software	Monitoring, Recording, Playback, PTZ, Search, HDD Status
Network Data Export	Backup, AVI, JPEG

INTEGRATION

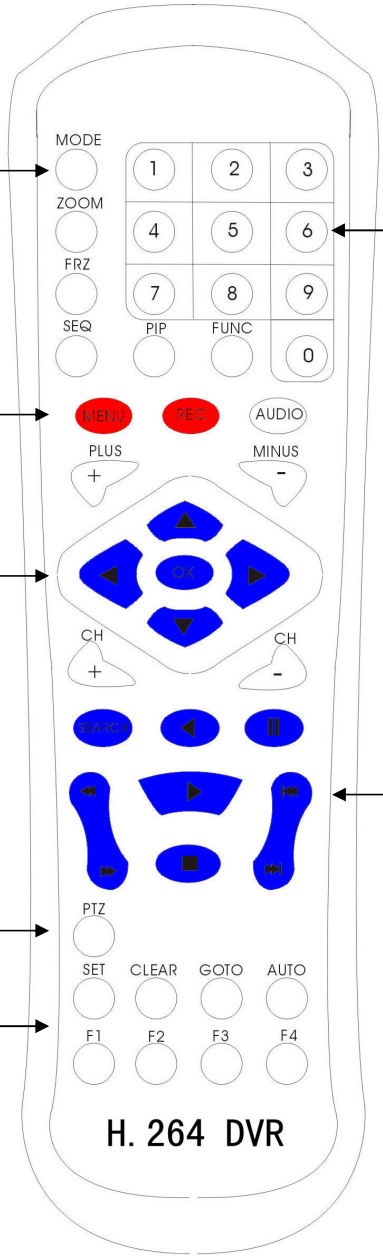
Audio In/Out	1 x RCA In, 1 x RCA Out
Alarm In/Out	4 x In (NO / NC Switchable), 1 x Out (NO / NC)
PTZ Control Protocols	1 x RS-485 (Pelco D, Pelco P, etc)
User Interface	On Screen Display (OSD), Front Panel Buttons, IR Remote Controller (optional), PS/2 Optical Mouse
User Group	10 x Accounts (Administrator, Manager, Users)

OTHER

Dimensions (W x H x D)	280 x 260 x 80 mm
Unit Weight	1.8 kg (without HDD)
Operating Temperature	0 ~ 45 ℃
Operating Humidity	0 ~ 90%
Power	DC 12C, 3.33A Adaptor
Approvals	CE, FCC, MIC, RoHS, WEEE

Specifications are subject to change without prior notice.

CH 9. Remote Controller *



MODE	4-split display
ZOOM	Zooming mode
FRZ	Freezing mode
SEQ	Sequencing mode
PIP	Picture-in-Picture mode
FUNC	Control icon on/off

MENU	Menu on/off
REC	Emergency recording on/off
AUDIO	Audio output mute on/off

+ / –	PTZ zoom in/out
Arrow	Audio output volume
	Cursor/Menu/PTZ direction
OK	Enter / Increase values
CH + / –	Switching Ch
	Increase/decrease values

PTZ	PTZ on/off

No Function

1~4	Select Ch / Input number
5~9/0	Input number
REC	Emergency Recording on/off

Search	Search Menu
I◀	Back to the beginning
◀	Backward playback
▶	Forward playback
▶I	Back to the end
◀◀	Fast backward playback
II	Pause
■	Stop
▶▶	Fast forward playback

* Optional component.

Recommended HDD List

No	Brand	Model	Capacity
1	WESTERN	WD1600AVBS	160GB
2	WESTERN	WD1600AAJS	160GB
3	WESTERN	WD2000JS	200GB
4	WESTERN	WD2500JS	250GB
5	WESTERN	WD3000JS	300GB
6	WESTERN	WD3200JS	320GB
7	WESTERN	WD5000AAKS	500GB
8	WESTERN	WD7500AAKS	750GB
9	Hitachi	HDT722516DLA380	160GB
10	Hitachi	HDT725025VLA380	250GB
11	Hitachi	HDS725050KLA360	500GB
12	Seagate	ST3250820SV	250GB
13	Seagate	ST3250820SV	320GB
14	Seagate	ST3250820SV	500GB

1. Aforementioned HDDs were tested in laboratory and had found compatible with DVR.
2. Since HDD is a third-party consumable item, please refer to its original manufacturer for reasonable usage and warranty coverage policies.

MEMO

MEMO

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